

INDEXED

ANNUAL REPORT OF THE DIRECTOR

PAN AMERICAN HEALTH ORGANIZATION

Pan American Sanitary Bureau, Regional Office of the

WORLD HEALTH ORGANIZATION

**The Pan American Sanitary Bureau
is the Secretariat of the
Pan American Health Organization;
the Bureau is also the
Regional Office for the Americas
of the
World Health Organization.**

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ANNUAL REPORT OF THE DIRECTOR

of the

PAN AMERICAN SANITARY BUREAU

REGIONAL OFFICE

of the

WORLD HEALTH ORGANIZATION

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PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION

525 TWENTY-THIRD STREET, N. W., WASHINGTON, D. C. 20037, U.S.A.

**To the
Members
of the
Pan American Health Organization**

I have the honor to transmit herewith the Report on the work of the Pan American Sanitary Bureau, Regional Office for the Americas of the World Health Organization, in the year 1966. This Report provides a description of activities at Headquarters and in the countries, together with a summary of the projects carried out by the Governments of the Americas in collaboration with the Bureau and with other international organizations. The Financial Report for the year is submitted separately.

Respectfully,

A handwritten signature in cursive script, appearing to read 'A. Horwitz', with a long horizontal flourish extending to the right.

**Abraham Horwitz
Director**

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ACRONYMS AND CORRESPONDING AGENCIES

AID	Agency for International Development (USA)
AIDIS	Inter-American Association of Sanitary Engineering
CIAP	Inter-American Committee on the Alliance for Progress
CINVA	Inter-American Housing and Planning Center
CREFAL	Regional Fundamental Education Center for Community Development in Latin America
ECLA	Economic Commission for Latin America (UN)
EXIMBANK	Export-Import Bank (USA)
FAO	Food and Agriculture Organization (UN)
IA-ECOSOC	Inter-American Economic and Social Council (OAS)
IBRD	International Bank for Reconstruction and Development (World Bank)
IDB	Inter-American Development Bank
ILO	International Labour Organisation
INCAP	Institute of Nutrition of Central America and Panama
KF	W.K. Kellogg Foundation
MEIC	Medical Education Information Center
NIH	National Institutes of Health (USA)
OAS	Organization of American States
ODECA	Organization of Central American States
OIRSA	International Regional Organization for Health in Agriculture and Livestock
PAHO	Pan American Health Organization
PASB	Pan American Sanitary Bureau
UN	United Nations
UNDP-SF	United Nations Development Program, Special Fund
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Fund
USPHS	United States Public Health Service
WHO	World Health Organization

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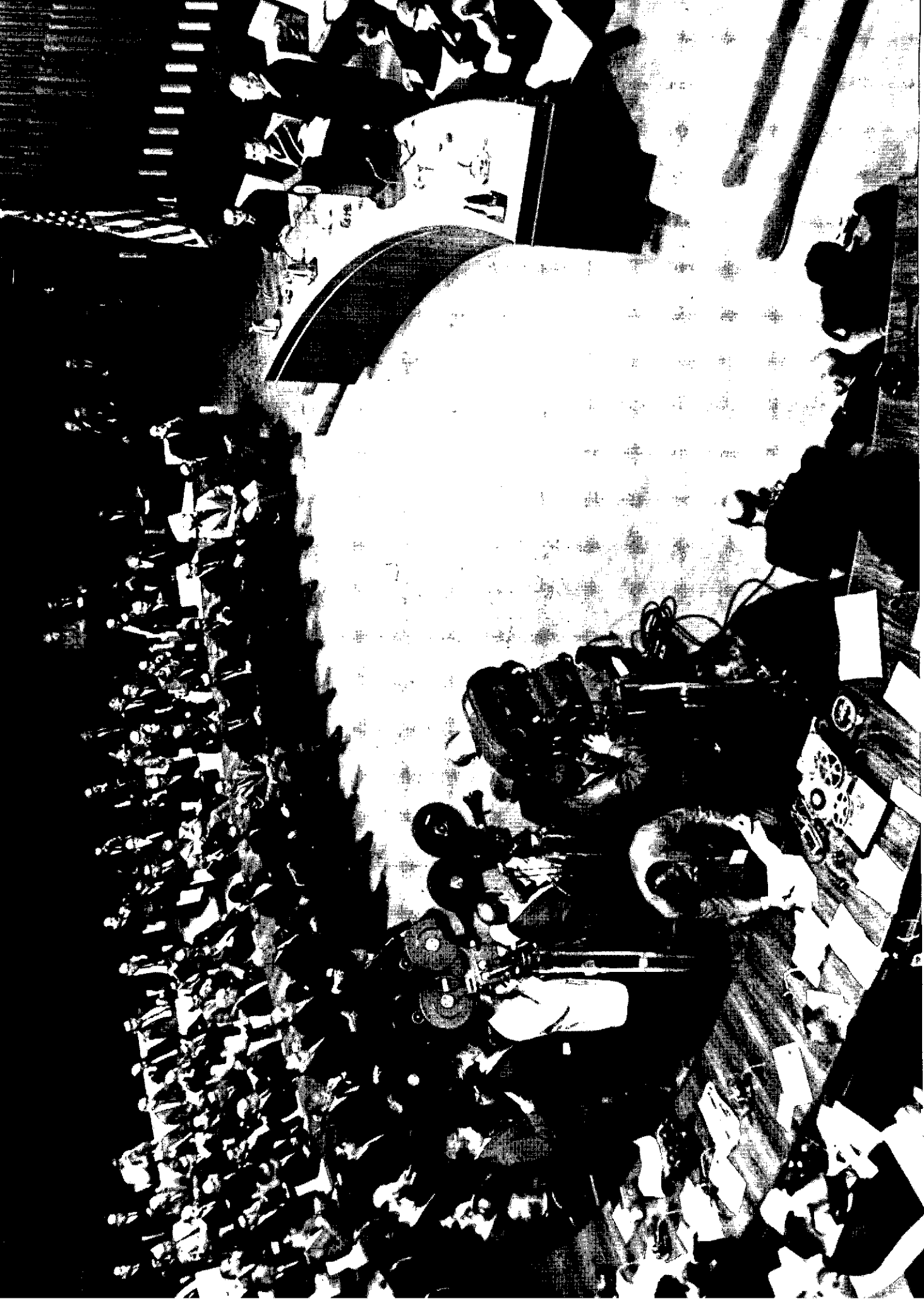
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INTRODUCTION

NINETEEN SIXTY-SIX, the year when the XVII Pan American Sanitary Conference was held, was a year in which the principles underlying the work of the Pan American Health Organization and of the World Health Organization in the Americas were brought into sharper focus. We shall examine those principles as a frame of reference for the subject matter of this *Annual Report*. The *Report* contains a summary of the activities under each program, which reflect and support the work of the Governments.

The fundamental importance of health as a factor in economic and social development is now an accepted fact. In practice this means that death, disease, and disability are recognized as obstacles to production and productivity. It also means that the environment and its physical, chemical, biological, psychological, and cultural components—all interwoven by history—are accepted as conditioning factors in the exploitation of natural resources, just as it is recognized that the growth of the economy, accompanied by an equitable distribution of income, contributes to individual and collective health.

A dialogue has arisen among economists, sociologists, health specialists, and other scientists concerning the interdependence of health and progress. This is not a philosophical dialogue revolving around the destiny of man, but essentially a pragmatic dialogue which determines the relative amount of investment in preventive and curative medicine. There are those who maintain, however, that the problem is essentially moral and that the nature of a society is revealed by the extent of its preoccupation with lengthening individual life and giving each person the opportunity to fulfill his potential. As Teilhard de Chardin has said, "to be more by knowing more." While none would dispute this assertion, it is equally true that the present realities of life in this fast-evolving Hemisphere require a search for scientific justifications that will give even greater strength, if this be needed, to the purely moral arguments. And this is the goal of the current dialogue between men of science. We believe that the contribution of health to development

and of development to health can be measured. This belief is supported by indications which, while few and far between, are nonetheless highly suggestive. However, this evidence is not sufficient to explain every case and thus permit the establishment of an economic theory of health, given the wide diversity of the two major variables in the health-economy relationship. We believe that there is a vast and rewarding field for sociological research—economics, for many, is a social science, at least in its ultimate goal of social well-being—which offers a challenge to the universities. It is hoped that this challenge will be accepted and that each study will help shape a genuine doctrine that, by extension or analogy, can be applied to other similar circumstances.

Up to now we have measured the cost of the recovery of health, the economic significance of absenteeism for certain activities, and the value of prevention in relation to the amounts that would have to be invested in curing the victims of a given disease, but we have not succeeded in measuring the cost of death in economic terms. Who would venture to predict what each individual would be capable of, if each had an equal opportunity for training and improvement? It is maintained, and rightly so, that the total expenditure in Latin America for health programs in the public sector is of the order of two billion dollars a year. Generally, from 5 to 10 per cent of the central government expenditures are for health programs. Actually, the investment is probably greater, because this estimate does not include private activities, individual or institutional. In any event, the amount is such as to justify an attempt to ascertain the results of this investment beyond its direct impact on the prevention and cure of disease.

We know of no studies that measure the other important consequences of health, mainly the abatement of environmental hazards and the resultant establishment or improvement of communities, the utilization of land, the development of industry and, in general, the exploitation of natural resources under suitable conditions. A number of community health activities are directed to the solution of strictly environmental problems, that is,

problems arising from what is external to man and society. And their cost and benefits should be measured because they represent a productive investment. Suffice it to mention the faster rate of economic growth in certain areas of each country where malaria has been eradicated. Other examples may be found in the control of insects, rodents and other vectors of disease, in the provision of water and facilities for sanitary disposal of waste, and in the control of air, land and water pollution, to mention only a few. In short, although the fundamental importance of health to development has been recognized, there is a need for systematic research to determine the possibilities of developing an economic theory of health.

* * *

Within the individual and in the community, health is an indivisible whole. To accept this ecological concept is to accept that human beings are continually adapting themselves to the changing conditions of the environment in which they live. This is a subtle and silent process that occurs in each person's internal and external milieu. There are gaps in our understanding of a number of diseases, precisely because we do not understand their complete cycle in nature. We do not know if, or how, other living species are involved in the process, or the role of the causative agent in each disease. This way of thinking, which is relatively easy to follow when applied to microorganisms, is also applicable to inanimate elements which are causative factors in disease. University teaching does not always encourage this ecological concept of health and disease, which is a rich field for research and analysis.

In practice, preventive and curative activities should be focused on the family as the work unit and should be conducted by a single institution, national or local, and by technicians, including those specialized in extremely complex tasks, in accordance with the concept that health is an inseparable whole.

"The first principle of good administration requires that, when a special function is to be undertaken, it be undertaken by one governing body for the whole community needing the service, and not for different sections of the community by several governing bodies."¹ This

¹ *The Dawson Report on the Future Provision of Medical and Allied Services, 1920.* Reprinted 1950, King Edward's Hospital Fund for London. (Cited from the preface to the Spanish edition published by the Pan American Health Organization in *Scientific Publication* 93, 1964.)

principle, enunciated 47 years ago, and even more valid today in this era of complex societies, has the following corollary: "Preventive and curative medicine cannot be separated on any sound principle, and in any scheme of medical services must be brought together in close coordination. They must likewise be both brought within the sphere of the general practitioner, whose duties should embrace the work of communal as well as individual medicine."²

The Americas have made progress in this direction, but much remains to be done so that every health service will be guided by these principles. Perhaps the most visible recent trend is that of incorporating into the permanent health services such specific activities as "campaigns" against a particular communicable disease. There are stages in the development of a country in which "vertical" action against a given health problem is warranted. However, the permanent trend should be toward integrating the health activities for each society according to the characteristics and dynamics of the problems and the quality of resources, particularly personnel.

* * *

There are wide differences in the level of development within the Americas, as throughout the world. Within a given country there are important regional differences which are reflected in the characteristic problems and cultural patterns. There is an enormous disparity between the quality of medical care in the rural areas and that provided by the so-called "new medicine," which is an effective union of engineering, electronics, atomic energy, and biology. However, precisely because development is uneven, each country requires a specialized unit to make possible the application of the new technology, and this has an important bearing on international cooperation.

Generally speaking, an understanding of social behavior is essential in order to define health problems and determine how to apply appropriate techniques and procedures to the solution of each. Payne was correct in saying that adaptation is more a cultural than a biological process, by which he meant that the attitudes and conduct of human beings living together are of paramount importance. We have much to learn in this matter, which offers a fertile field for sociological research on the dynamics of disease. This is all part of the eco-

² *Ibid.*, p. 6.

logical cycle we have mentioned in describing the modern conception of health. Studies will make it possible to understand the history of man's ideas and behavior with respect to disease and death and, by the same token, to influence his motivation and encourage his cooperation in the solution of problems affecting us as individuals and members of communities. The fact is that preventive and curative programs have been imposed from above, that is, by the governments, and we have underestimated the inherent capacity and genuine interest of each person in his own well-being and that of his neighbors. To repeat, then, we believe that the better our understanding of social conduct and attitudes, the more effective will be our efforts to prevent death and prolong life.

* * *

In Latin America, the migration of inhabitants to the urban centers has far outstripped the capacity of the cities to provide opportunities for manual or intellectual work and proper living conditions. In some countries, migration to the cities has amounted to as much as 5 per cent of the population per year. This has resulted in what is graphically described as the "ruralization" of the urban environment, as reflected in the crowded settlements surrounding the larger cities. These slums, known by various names in the different cities, are a manifestation of a social phenomenon attributable to a number of economic and psychological factors. Their existence has caused a serious disequilibrium in the distribution of each city's resources, intensified social tension and conflict, contributed to unemployment and underemployment, and led to the adoption of improvised solutions chosen more for their immediate impact than for their potential effectiveness in attacking the underlying problems, including those involved in the provision of health services.

This movement toward the cities has revealed the magnitude of the "rural problem" in Latin America, that is, the substandard living conditions of approximately 100 million inhabitants, which has become, perhaps, the most vital political, economic, and social problem of the area. At first glance it would appear that people are leaving the countryside because it fails to offer them sufficient incentive to stay and they are attracted by the mirage of the great city. Another reason would be that the government seems to be indifferent to their situation and they are offered no opportunities to realize their potential. It should be recognized that in recent years

the situation has tended to change as awareness of the problem and its consequences has increased and the urgency of taking measures to improve the economy and well-being of each rural area has been recognized. It is realized that, regardless of how much progress is made in industrialization and the application of modern technology, agriculture will continue to be extremely important to the economy of the Latin American countries throughout this century. Moreover, regardless of every advance in the modernization of land use and tenure, it will always be essential to provide a proper standard of living for the tillers of the soil who feed the rest of the country and contribute to its wealth. The fact is that wherever a genuine effort has been made to motivate the rural inhabitants they have shown a desire and willingness to cooperate and contribute to collective well-being, which means that there are sound possibilities for gradually solving the rural problem. In our opinion the most significant development in recent years has been this rediscovery, in historical terms, of the intrinsic worth of the rural inhabitants, whatever their cultural characteristics may be, and their capacity to participate actively in their communities and to enter the mainstream of economic life.

* * *

In most of the countries economic growth has not kept pace with the increase in population. This has tended to undermine the effectiveness of the measures adopted to satisfy basic needs, including the prevention and cure of disease. In the Americas, as in the entire world, the situation has highlighted the problem of population dynamics and focused attention on the possibilities of family planning as a means of fostering responsible parenthood. It is needless to elaborate on this delicate matter, which affects the most intimate feelings of each person, as well as the destiny of societies and countries. Since any population policy will have an effect on future generations, those establishing the policy must first determine the future trends of development and the quality and quantity of resources needed to sustain progress in the future. And their responsibility is all the more serious to the extent that the family planning measures adopted are irreversible.

This question was extensively discussed in the World Health Assembly and in the meetings of the Governing Bodies of the Pan American Health Organization in the last two years. The conclusions, which are set forth in

the pertinent resolutions,³ make it clear that it is the policy of these international organizations to give advice to Governments only if, after establishing a population policy on their own, they so request the organizations. The policy also emphasizes that it is incumbent upon each family to decide on the number of children and to select the method it wishes to use, according to its own ideas, beliefs, and sentiments. This entire process, essentially educational, should be part of the maternal and child welfare programs and be carried out through the health centers. According to the policy established, WHO and PAHO are not to cooperate in independent programs providing only for family planning.

The foregoing considerations refer to individual families. In regard to each country, it is essential to study the consequences that the extensive application of family planning techniques can have on development, in terms of the human resources required for industrialization, agriculture, education, housing, health, and other activities basic to progress and well-being. The universities should give particular attention to those studies affecting the entire teaching system and cooperate with the Governments in the establishment or revision of population policies. For these purposes the Governments should maintain units or centers for the study of population dynamics.

* * *

The health problems observed in the Americas reflect the degree of development of each society.

In most of the countries and in parts of each, the principal health problems are acute and chronic infections; environmental hazards, particularly those arising from inadequate basic sanitation; malnutrition, mostly deficiencies; substandard housing; unsatisfactory working conditions from the standpoint of physical and mental health hazards; inadequate clothing; and insufficient income in relation to basic needs and the attractions of the social environment. This list of the principal health problems of the Americas is consistent with the demographic and socioeconomic profile of the Region, which can be summarized as follows: a young and predominantly rural population, reflected in the proportion of

persons under 20 years of age; birth rates of 40 or more per thousand inhabitants; life expectancy at birth, between 50 and 60 years; high illiteracy rates; unsatisfactory housing conditions; inadequacy or lack of water and sewerage services, particularly in the rural areas; concentration of production in the primary sector, characterized by low productivity, low income, and uneven distribution of income; chronic underemployment; and lack of access to foodstuffs, aggravated by failure to adopt a rational approach in selecting the most nutritious foods from among those available—all of which results in widespread and chronic undernourishment.

Each of these factors is a problem in terms of a comparison with the more developed areas of each country and with the technologically advanced countries in the Hemisphere or other regions of the world. While the over-all picture is rather unfavorable, the effect is less disheartening if we consider how each problem has evolved in the course of the century, for in each of the items mentioned there has been progress, although on a much different scale than in the developed areas. This situation is perhaps especially clear in the field of health, as shown by the increase in life expectancy at birth in many of the countries of the Hemisphere. There are those who attribute the "population explosion" to the substantial improvement of health conditions brought about by the application of modern technology. We doubt that a problem so complex as this can be traced to a single cause, for development is the result of many variables, but we do acknowledge that there has been substantial progress in Latin America in the prevention and cure of the more prevalent diseases. While general mortality rates are tending to approximate those of the developed countries, there has not been an equally significant change in the structure of this mortality. Death rates for infants and for children under 5 years of age have remained consistently high, reflecting a variety of causes, principally infections, malnutrition, ignorance, unhealthful surroundings, and insufficient income to provide access to modern medical techniques.

Although the major quarantinable diseases have tended to disappear from the Americas in this century, the endemic diseases persist as an indication that proven methods of prevention are not being systematically applied. Human and material resources are below the minimum required for each activity to attain acceptable levels of prevention and treatment. For these reasons it has been said that, where individual and collective health is concerned, Latin America is a continent in transition. Diseases of a predominantly degenerative type, such as cardiovascular conditions, cancer and diabetes, are be-

³ Resolutions WHA18.49(1965) and WHA19.43(1966): *Off. Rec. Wld Hlth Org.* 143 and 151, pp. 35 and 20-21, respectively. Resolution IX of the XVI Meeting of the PAHO Directing Council (1965): *Official Document PAHO 66*, 62-63; and Resolution XXII of the XVII Pan American Sanitary Conference (1966): *Official Document PAHO 74*, 81-82.

ginning to appear, together with household, industrial and traffic accidents, among the 10 principal causes of death—and in some countries, among the first five. In any case, there are abundant opportunities to prevent at a much lower cost than disease and death would involve. And prevention can be done either by direct methods (raising immunity levels and, through adequate nutrition, increasing the capacity to resist) or by indirect methods such as breaking the transmission cycle of a disease, whatever its etiology. The reduction of environmental hazards is an example of such indirect methods.

In this stage of transition, in order to formulate action programs it is just as necessary to have a clear understanding of the dynamics of diseases as it is to know their causes and conditioning factors, particularly since their relative incidence varies so widely within each nation and among the countries of the Americas.

* * *

Planning, the training of professional and auxiliary personnel, basic and operational research, and proper organization and administration of services have been recognized as essential instruments for the solution of health problems. Each of these fields represents a pooling of human and material resources for the purpose of reaching specific objectives. And each will be mentioned in this *Report* in describing the activities of the Organization in 1966.

* * *

In their efforts to cope with increasing social demands, **most of the Governments have found it essential, for some programs, to supplement the domestic resources with capital borrowed from external sources,** particularly from the Inter-American Development Bank and the United States Agency for International Development. This is especially true in the case of projects for the provision of water supply and basic sanitation services, malaria eradication, foot-and-mouth disease control, university education, and certain integrated community development projects. We wish to emphasize that this provision of external funds is based on a genuine desire to meet the requirements of local communities, which are increasingly conscious of public health as a right and, therefore, demand that the government provide the necessary resources to fulfill this

vital necessity. The Pan American Health Organization has urged the international financial organizations to include these activities in their lending programs. Other areas of activity merit similar treatment, because of their social and economic importance.

* * *

It is imperative to improve the organization and structure of the health services and to establish more efficient technical and administrative procedures in order to obtain more productive use of existing resources. With this in view, it has been recommended that the different public and private institutions in each country engaged in preventive or curative activities be coordinated under the aegis of the health ministry and pursue a unified policy. Definite efforts are already being made in some countries to correlate the services of the ministries with those of the social security institutions. More will be said on this subject when we refer to the Technical Discussions of the XVII Pan American Sanitary Conference. Moreover, within each institution, particularly hospitals, there are opportunities and possibilities of serving a larger number of persons, with equal or greater efficiency, with the existing personnel and equipment by improving the administration of those facilities.

* * *

The Americas have specific, tangible, and regional goals. These are set forth in the Ten-Year Public Health Program which appears in Resolution A.2⁴ of the Charter of Punta del Este. The Meeting of the Task Force on Health at the Ministerial Level,⁵ held in Washington, D.C., in April 1963, outlined the measures that should be taken to attain each of the goals of that Program, and also the instruments required for their attainment. These guidelines, supplemented by various resolutions adopted by the Governing Bodies of the Pan American Health Organization and the World Health Organization, are the basis of the work carried out by the Pan American Sanitary Bureau. In this way, international cooperation serves as a supplement to, not a substitute for, the work of nations and Governments. International health work is closely linked to the efforts of each Government and community and is conducted in

⁴ *OAS Official Records Ser. H/XII.1 (Eng.)*, 30-32, 1961.

⁵ *Official Document PAHO 51*, 1964.

such manner and through such methods as are determined by mutual agreement.

* * *

These are some of the principles and criteria that were prominent in the discussions of the **XVII Pan American Sanitary Conference**, particularly in those at which each Government presented its report on progress achieved in the four years since the last Conference and on its programs for the following quadrennium.

Following the presentation of these country reports, the Conference declared that "it would be in the interest of the Governments to use the Conference as a forum for the exchange of information and ideas about important aspects of the health conditions in their respective countries."⁶ The XVII Conference was a genuine forum in which the objective and rational analysis of both positive and negative results was of great practical value to the participants. It was also a symbol of scientific solidarity in the Americas in considering matters of health and well-being within the larger framework of development in general. The Ministers or their delegates were obviously much more interested in emphasizing what remained to be done than what had already been accomplished, and in supporting those statements with morbidity and mortality statistics, descriptions of preventive and medical care programs, and estimates of human and material resources. While it was recognized that the data presented were incomplete as to both quantity and quality, it was also evident that important progress had been made. Above all, the discussions reflected the firm resolve of the Ministers of Health and their agencies to recognize the importance of statistics as an essential instrument for planning, organization, administration, and for evaluating the capacity of services to obtain practical and measurable results in the fields of prevention and treatment.

The countries that had prepared a national health plan stressed this in their reports, along with the importance of such a plan as another essential instrument for determining priorities by rational rather than intuitive means and using resources according to those priorities.

As stated in the oral presentations, developments during the four-year period provided a reliable indication of trends that were to follow, for, as we have said, they reflected a clear recognition of the interdependence between health problems and economic and welfare prob-

lems in the Americas. For the Bureau, these reports are of tremendous value. In the first place, they contribute to the effective performance of its role as depository of the natural history of health in the Americas. They also enrich its library and, thereby, its capacity to provide information on phenomena, problems, and programs in the Hemisphere. In addition, the reports enable the Bureau to better perform its responsibilities in a manner consistent with the wishes of the Member Governments, on the basis of reliable information. This, apparently, was the sense of the Conference when it requested that a comparative study of the reports be made, that the matters of greatest importance to the health of the Americas be selected, and that the Governments be invited to stress these matters in the reports of their delegates to the XVIII Pan American Sanitary Conference.

The Bureau facilitated this analysis by presenting its report for the quadrennium 1962-1965⁷ which, along with the document entitled *Health Conditions in the Americas, 1961-1964*,⁸ presented an over-all view of the policies followed and the activities conducted by the Governments with the help of international cooperation based on vital and health statistics.

The **Technical Discussions**⁹ during the Conference dealt with the topic "Means for Promoting and Making Effective the Coordination between the Services and Programs of Ministries of Health, Social Security Institutes, and Other Institutions that Conduct Activities Related to Health." This topic, selected by the Governments at the XVI Meeting of the Directing Council, is itself a significant indication that the actions of the State and of private enterprise should be guided, above all, by humanitarian considerations, and should aim at the creation of social well-being. Institutions are organized to serve human beings, and those pursuing similar objectives should be coordinated because it is to a country's interest to obtain the greatest possible returns from the available human and material resources at its disposal. It is gratifying to note that this was the prevailing spirit in the group that took part in the Technical Discussions, based on the presentations of the panel of experts. The Discussions were attended by representatives both of the ministries of health and of the social security institutions, which meant that the problems were discussed in the light of the experience of those who, in most of the countries, bore the responsibility for providing the medical benefits prescribed in the constitution and the legislation in force.

⁷ *Official Document PAHO 72*, 1966.

⁸ *Scientific Publication PAHO 138*, 1966.

⁹ Published in Spanish in the *Boletín de la Oficina Sanitaria Panamericana* Vol. LXII, No. 1, pp. 1-6 (January 1967).

⁶ Resolution XXXIX. *Official Document PAHO 74*, 99-100, 1967.

As a working document the Bureau presented the findings of a survey conducted in 10 Latin American countries that voluntarily offered their information on the availability, costs, and utilization of services.¹⁰ This wealth of information, when analyzed from certain new angles, will facilitate the implementation of the recommendations derived from the Technical Discussions. Discussions such as these offer valuable guidance on achieving coordination within and between the services operating on a national and local level by clearly indicating the opportunities for joint programming, for standardization of nomenclature and statistics, for utilization of common principles and norms in the training of professional and auxiliary personnel, and for the construction of new local services in such a way as to avoid duplication and permit full utilization of existing facilities on the basis of a common program.

In this work the Organization of American States and the Pan American Health Organization have acted in concert. In fact, the Inter-American Economic and Social Council, in its Fourth Annual Meeting at the Ministerial Level,¹¹ recommended that social security programs be coordinated with health and development plans through the appropriate agencies.

It is gratifying to note that several Governments of the Hemisphere have already taken steps to put this historic and far-reaching decision into practice.

* * *

The fifth anniversary of the signature of the Charter of Punta del Este, which sets forth the goals of the Alliance for Progress, was commemorated at the Headquarters of our Organization in Washington, in a formal ceremony which was presided over by the Secretary General of the Organization of American States, and at which the President of the United States of America, Lyndon B. Johnson, in a thought-provoking speech, discussed the present status of this great hemispheric undertaking. While acknowledging the progress that has been made, the President emphasized the need for renewed momentum in terms of the needs indicated by recent experience, and voiced his support for the holding of a meeting of Presidents of the American Republics at which the problems of development, particularly those involved in the establishment of a Latin American com-

mon market, could be discussed at the highest political level. This ceremony was also attended by the Vice-President of the United States, several Cabinet members, the Ambassadors of the American Republics to the White House and the Organization of American States, and many other dignitaries.

It seems to us symbolic that the Headquarters of the Pan American Health Organization should have been chosen as the site of this important event, in which the new ideas of progress already circulating in the Hemisphere were given shape and support.

* * *

The Pan American Sanitary Conference expressed the views of the member countries with respect to **the policy and program of the Organization in the field of research**. In doing so, the Conference had before it a report¹² on activities in the previous five-year period, which presented a summary of 90 projects, completed or under way, all of which had been examined by the PAHO Advisory Committee on Medical Research. These projects are directly or indirectly related to health problems, particularly nutrition and dietary problems, endemic goiter, cardiovascular diseases and cancer, disease eradication, foot-and-mouth disease, various zoonoses, studies on mortality and on manpower for health activities, radiation protection, and population dynamics. All these projects represent a contribution to the understanding of complex biological and social phenomena with a direct bearing on prevention and health measures.

It seems important to stress that a consensus today exists among the Governments of the Organization as to the importance of research activities to both national and international health work. This stems from a recognition of the fact that although biological phenomena are essentially the same in every society, their manifestations and consequences can vary and, therefore, different measures may be required in each case to bolster their favorable effects and prevent or limit the adverse effects. For this reason, a single process or technique must be studied in each community to determine its characteristics and the action to be taken accordingly. Also, as we have said, it is impossible to understand the dynamics of health and disease without taking into account their total ecological cycle, which frequently involves various species, each subject, in turn, to wide variations. Epidemiology, regarded in its broadest sense—which takes in much

¹⁰ A summary report also appeared in the January 1967 issue of the *Boletín*, pp. 9-31.

¹¹ *OAS Official Records Ser. H/XII.11 (Eng.)*, pp. 25-27.

¹² Document RES 5/8, 1966.

more than just the diseases produced by microorganisms—emerges as a comparative science.

As an example of this we can cite the **Inter-American Investigation of Mortality**, in which the death certificates of 43,298 adults in 12 different cities, chiefly national capitals of the American countries and Bristol, England, were studied. The results of this survey are scheduled for publication in 1967.¹³ Preliminary analyses have revealed sharp differences in the causes of death in those cities, which suggest the need for new research to explain the differences. An investigation has already been started to determine the epidemiological characteristics, in the city of La Plata, Argentina, of persons afflicted with cancer of the larynx, the lung, and the bladder, in terms of their place of residence, occupation, smoking habits, and consumption of alcohol. This survey is sponsored by the Ministry of Public Health of Argentina and the Organization.

The findings will provide valuable material for new studies, particularly of those diseases in which various causes operate concomitantly and, therefore, no precise etiology can be identified at this time. Meanwhile, the epidemiological analyses have proven to be a highly valuable instrument.

Life at high altitudes was the subject of a special session held during the meeting of the Advisory Committee on Medical Research. *Scientific Publication PAHO 140*¹⁴ contains the papers presented at the session, the discussion, and a summary of new research. The purpose of the session was to study the natural or acquired adaptation of man to environments with low oxygen levels. Several millions of persons in the Americas live at altitudes of more than 10,000 feet, with the consequences to be expected in their physiology and in the incidence and evolution of diseases. It will be interesting to compare these findings with the ones for other parts of the world where people live in similar environments.

A first attempt to study the **migration of health personnel, scientists, and engineers from Latin America**¹⁵ was published by the Pan American Health Organization. This report was the basis for a discussion of the problem by the Advisory Committee on Medical Research. Although the information is not complete, there is no question but that the problem exists and that the specialists are also emigrating to the same places from countries in other parts of the world. It seems

essential to measure the problem more exactly and determine, if possible, the professional capacity of the persons who emigrate. Considering this migration as a process natural to all living species, the Committee pointed out that in those countries where the outflow is heavy the solution lies largely in creating incentives to stay and not only in imposing restrictions on emigration. Economic causes, while important in some countries, are not the only ones. There is also the lack of encouragement and of opportunities for the more talented and better trained to realize their potential. Since education and research are so linked, the Advisory Committee suggested the adoption of measures to identify advanced educational centers that could be used for the training of specialists from other countries. It also emphasized the value of any measure that would help to develop research in each country, as well as the exchange of teaching personnel between the countries.

The Conference agreed that the problem was serious and requested that a study be made of the action that should be taken by the Governments and the Organization to arrest this migration.

A direct result of the research activities was the decision to expand and increase the number of **multi-national centers for training and research** in the life sciences and medicine in the Americas. The Organization has already had some experience in certain areas of individual and collective medicine, including the training of health specialists in the university schools of various countries of the Americas; courses in social pediatrics conducted each year in Santiago, Chile, and Medellín, Colombia; international nutrition courses at the Institute of Nutrition of Central America and Panama; studies and research activities of the Pan American Foot-and-Mouth-Disease Center; studies on population dynamics in the Schools of Public Health of Chile and of São Paulo, Brazil; and courses in immunology at the Paulista School of Medicine in Brazil. Other centers are being identified for the same purpose. However, the need is so great that special resources are required in order to meet the demand and help strengthen the scientific community that is being formed by these means.

In the course of the year, a Study Group for **epidemiological research on alcoholism** in Latin America, consisting of specialists from seven countries, was convened. The Group prepared a proposal for an international study on the incidence of alcoholism, attitudes of the population, and cultural patterns associated with the drinking habit. In view of the existence of "working definitions" which make it possible to identify, in each

¹³ *Patterns of Urban Mortality: Report of the Inter-American Investigation of Mortality (Scientific Publication PAHO 151, 1967).*

¹⁴ *Life at High Altitudes, 1966.*

¹⁵ *Scientific Publication PAHO 142, 1966.*

society, those who are subject to alcoholism in its varying degrees, programs to control this serious and widespread social problem can be organized in the Americas and in many other countries of the world. Certain valuable information, based on common criteria, is already available but should be supplemented by studies in each country where the problem exists, along with data on the organization and administration of the corresponding services. This explains the interest of the Organization and its reasons for establishing the Study Group. Owing to the lack of precise criteria for identifying mental disability and personality disorders, it has not been possible to increase our understanding of the dynamics of these diseases. Until such time as research indicates their etiology and pathology, the "working definitions" based on traditional epidemiology will at least make it possible to limit their damaging effects and contribute to better mental health.

The **Institute of Occupational Health and Air Pollution Research**, in Santiago, Chile, which has had the assistance of the Organization and financial aid from the United Nations Development Program, continued or completed, in 1966, studies on benzol poisoning, detection of carcinogenic substances in the air, air contamination by pesticides, determination of toxic substances arising from decomposed fish, and carbon monoxide poisoning in drivers of public vehicles and traffic policemen. Of special interest were the measurements of radioactive contamination produced by atomic explosions in an area of the South Pacific during the second half of the year. The Institute quickly organized six air-sampling stations in various places in Chile and analyzed milk samples in three other localities. The Organization sent a radiophysicist and a radiochemist to advise the Chilean authorities on methods of measurement. It was found that the existing levels of concentration had no effect on the health of the inhabitants.

Eight laboratories and research units in seven countries collaborated in the **study on endemic goiter and cretinism**. Epidemiological and socioeconomic data were gathered, and the use of intramuscular injections of iodized oil for goiter prevention in Ecuador and Peru was investigated. The Iodine Reference Laboratory was installed in Santiago, Chile, and began its activities late in 1966. Its purposes are to standardize the methods of iodine titration by analyzing duplicate samples from the cooperating laboratories in order to improve their techniques and train personnel.

Seven countries, through nine institutes, are collaborating in the **study of nutritional anemias** sponsored by the World Health Organization and the Pan American

Health Organization. The Reference Laboratory is located in the Institute of Scientific Research in Miranda, Venezuela. The material from each of these institutes was gathered during the year, and assistance was provided for the analyses.

The Institute of Nutrition of Central America and Panama (INCAP) continued its **basic research on protein-calorie malnutrition** and its effects on public health. These studies include: the epidemiology of malnutrition in rural communities; effects of nutritional status on physical and mental development and work capacity; interrelations of infections and nutrition, and other similar matters. The Institute also continued its efforts to modify or improve vegetable protein mixtures of the Incaparina type.

Consultants of the Organization are cooperating in clinical and acceptability tests of protein-rich foods in Brazil, Haiti, Peru, and Trinidad and Tobago.

In the field of **radiological health** studies were continued on manganese poisoning, as a metabolic disorder, with a view to gaining an understanding of the neurological symptoms, similar to those of Parkinson's or Wilson's disease, induced by that metal. Research was also continued on the effects of background radiation in Brazil. This is a joint project of the Biophysics Institute of the University of Brazil, the Department of Physics of the Catholic University, and the United States Atomic Energy Commission, and is coordinated by a consultant of PAHO. Chromosomal aberrations of residents in those areas have been confirmed, and their nature and extent are to be studied. Work also continued on the effects of radiation on the fertility of *Rhodnius prolixus*, the vector of Chagas' disease, in Venezuela, but no conclusive results have yet been obtained.

Research in the field of malaria eradication has been directed to the testing of new insecticides such as Baygon (OMS-33), which has shown promising qualities although it is still prohibitive in cost; the testing of different combinations of antimalaria drugs, particularly against *Plasmodium* strains resistant to chloroquine; and the study of eradication systems in selected areas of Mexico that could serve as a base for the national program. Details of this activity are contained in the *Report*.

We have outlined some of the research programs conducted by our Organization, either directly or in cooperation with universities or institutes in different countries of the Americas. All of these programs are reflections of the policy established in accordance with a report of the Advisory Committee on Medical Research. Their diversity stems from the varied nature of health problems in the Americas. The Conference not only recognized

the importance of research as one of the basic activities of the Organization, but also authorized the establishment of a Special Fund, for which contributions were offered by the Governments of Argentina, Brazil, and Uruguay.

* * *

"It is now axiomatic that, in addition to providing a basis for the control or eradication of communicable diseases, **a permanent comprehensive health service** is the only way of ensuring adequate general health coverage of the total population of a given country. But the success of any nation-wide system of basic health services depends on its planning and on the ability of the national health authority to provide it with the necessary technical guidance and administrative control."¹⁶

These words of the Director-General of the World Health Organization contain the basic elements for rational and progressive action to resolve the health problems of a country, whether by transitory measures, whatever their duration, or by continuing programs to attack the enduring problems of life in society, those which have to do with the prevention and cure of disease. Let us examine this axiom in relation to the activities of our Organization in the Americas in 1966.

Reference is made, first, to the control or eradication of communicable diseases. In this respect, the Organization continued its efforts to achieve **better coordination of local services with the malaria eradication program**, especially in the consolidation and maintenance phases. Seminars in Peru and Honduras examined practical ways of achieving this purpose and outlined the responsibilities of health administrators and malaria experts in preventing the reappearance of the disease after its eradication, or in helping to gradually reduce its incidence. Similar activities are planned for other countries in the malarious areas of the Americas. The problems inherent in work of this kind are readily understandable. They are, at the root, psychological, since coordination is primarily a question of attitude, that is, of developing a natural willingness to place capacities and resources at the service of a single objective. Once a consensus has been reached, the methods and procedures spring from the imagination and experience of the participants themselves. The Organization will continue to advise the Governments, not only because of the mandate received from them in the Nineteenth World Health Assembly and the XVII Pan American Sanitary Confer-

ence, but also because this is the natural outgrowth of modern principles of health action. The Conference resolved: "to accelerate the coordination between local health services—whether governmental, autonomous, or private—and the malaria eradication programs, including radical-cure treatment of the greatest possible number of patients."¹⁷

The same criterion applies to the eradication of smallpox, which presents fewer complexities than malaria eradication. Smallpox eradication also requires the active participation of local health services, especially to maintain an effective level of immunity that will prevent the reappearance of the disease. The principles are the same, but the procedures are simpler. Accordingly, as pointed out by the Director-General of WHO, this coordination of specific action with general programs should be the general rule. Unfortunately, this is not yet the case in the Americas, which explains why the Organization has stressed this objective in the last two years.

As stated by the Director-General, planning, technical guidance, and administrative control are three closely related and interdependent instruments for ensuring the success of any nation-wide system of basic health services. Extensive work was done in the Americas in 1966 in each of these areas.

Planning, of course, is one of the fundamental instruments in the prevention and cure of disease. This was reaffirmed by the XVII Pan American Sanitary Conference, which recommended that efforts be continued to establish a Pan American Center for Health Planning in close association with the Latin American Institute for Economic and Social Planning, thus, in effect, establishing an institutional framework for the work done in the last five years. Actually, the best argument for stabilizing a function considered essential by the Governments is found in the experience gathered by the Organization in rendering advisory services for the preparation and periodic evaluation of plans and in its training and research activities. During this five-year period, activities carried forward by present methods have revealed a number of areas in which definitive studies are needed in order to clarify concepts and procedures. Economic, sociological, administrative, and other problems requiring clarification have come to light. In the same period it has often been necessary to simplify the method in use and adapt its application to the political and administrative structure and health conditions of each country. It has become abundantly clear that planning is essentially comprehensive and must include all the public and private

¹⁶ Introduction to *Proposed Regular Programme and Budget Estimates* (1968). *Off. Rec. Wld Hlth Org.* 154, xvii.

¹⁷ Resolution XIII. *Official Document PAHO 74*, 69-70, 1967.

institutions involved in the application of techniques for the prevention and cure of disease. The ministries of health are, by constitutional provision, the coordinating agencies in each country. There is also an evident need to establish procedures for including the health programs in the national economic and social development plans. As a corollary, it is essential to investigate the relationships between the factors contributing to development, a question on which no precise information is yet available and for which no simple and practical methods have been devised.

It is obvious, moreover, that the very act of preparing a sound national plan, which provides the health workers engaging in this exercise with practical training and experience, benefits the country by increasing its capacity to use more effectively the resources available for the established priorities. This is the starting point of a process that should continue indefinitely, since it is in the national interest to reach the objectives and evaluate their results in order to adapt them to new conditions created. It has rightly been said that more important than the preparation of the first plan is the establishment of the planning process, since it proves that the Government has decided to develop it and to establish the necessary structures to ensure its continuity.

The account in the *Report* of the work done in 1966 shows that the Governments have resolved to make planning a fundamental tool for promoting, protecting, and restoring health. Nevertheless, as occurs in all human enterprises, as progress is made, the obstacles become more evident, the pace slower, and, on occasion, the interest less. For that reason, no matter what the setbacks, continuity must be the main emphasis.

One of the major difficulties confronting rational planning is the **weakness of administrative structures, methods, and practices**. It is evident in all the disciplines constituting the science and art of administration. Aware of their fundamental importance, the Pan American Health Organization, following a decision by the Governments, has laid increasing emphasis on this subject in its general program of work. Through permanent advisers or short-term consultants, through seminars and academic courses, through the preparation and distribution of scientific publications, efforts have been made to develop a true administrative consciousness. The positive effects, both financial and social, that flow from the rationalization of methods and practices are a major factor in strengthening what, in the last resource, must be an attitude of officials and institutions. When the gap between needs and resources is so very wide, waste must not be allowed to be the norm, especially when it springs

from ignorance of a fundamental branch of knowledge.

It is interesting to note that the more rapid process of industrialization and the application of science and modern technology, the greater the respect society has for the organization and administration of institutions. The prestige of the executive and the entrepreneur is commensurate with the importance scientists and technicians attach to their functions.

The interest of the ministries of health of the Americas in modernizing the organization and administration of their services is to be seen in the increasing number of requests for advisory services in this field made to the Organization. This demand has to some extent been stimulated by the process of planning. Some Governments have decided as a first step to adopt program budgeting, a technique whereby investments are correlated with activities and objectives and not, as was usually the case, with undifferentiated activities. Furthermore, every plan must be expressed in a program budget so as to make it possible to ascertain the cost of achieving each target of the established priorities. This technique calls for a review of the various administrative activities designed to help satisfy the health needs of each society. Other functions of major importance, in addition to budget and financing, are personnel, supplies, transportation, and the organization and maintenance of buildings. The very diversity of these functions explains the procedures adopted by the Organization in responding to the requests of Governments; the work done in 1966 in this respect is summarized in the *Report*. In malaria eradication, water supply, and sewage disposal, to mention specific programs, and in the administrative departments of the ministries of health, very considerable efforts have been made which, although inconspicuous by nature, are nevertheless of vital importance. Yet, despite these signs of progress, it has not been possible to incorporate into the university curriculum for professional health workers, administrative methods and practices, which today are so essential in the Americas. Furthermore, better coordination between planners and administrators is needed from the very formulation of the plan as well as during its implementation and evaluation.

* * *

“Strong impetus for the improvement of **health statistics** in the Americas was given by the recommendations adopted at the Technical Discussions held during the XVI Meeting of the PAHO Directing Council (October 1965), at the Technical Discussions during the

Nineteenth World Health Assembly (May 1966), and at the Fourth Meeting of the PAHO Regional Advisory Committee on Health Statistics (June 1966).” This assertion in the *Report* is substantiated with details of the work done by the Governments with the Organization’s assistance during the past year. It includes programs in vital and health statistics, hospital statistics, statistics of resources and services, as well as the beginning of advisory services in the use of electronic computers for data processing.

Reference was made earlier to the Inter-American Investigation of Mortality, which was continued in 1966 and whose final report is to be published in 1967. A partial study of this Investigation gave an indication of the vital importance of systematically collected information in understanding the dynamics of the diseases in urban centers.

The impetus in the work described in the *Report* also shows the continued progress in all the countries in overcoming deficiencies and in obtaining realistic, accurate, and complete vital and health statistics, published early enough to be an effective tool in planning, organizing, and improving health services and in evaluating both their specific and their social effects. However, planning has shown that the availability, timeliness, and quality of the data for the analysis of health conditions and resources are still deficient. Their improvement, which would greatly facilitate the rational formulation of programs, is urgently necessary. However, while that is being done, there should be no let-up in the preparation of plans, for the available data, buttressed by pertinent samplings, provide sufficient information for establishing policies, priorities, and objectives and for initiating the process of planning.

* * *

“But the success of any nation-wide system of basic health services depends on its planning and on the ability of the national health authority to provide it with the necessary technical guidance and administrative control.”¹⁸ Technical guidance depends on the organization of services at the national level, adequate regionalization, and the integration of preventive and curative activities at the community level. These are the prime aims of the health promotion activities which our Organization carries out through general and specific programs, all of which are described in detail in the *Report*. Be-

¹⁸ Introduction to *Proposed Regular Programme and Budget Estimates* (1968). *Off. Rec. Wld Hlth Org.* 154, xvii.

cause they relate to all the health problems of a country, these activities are naturally very diversified and are focused on technical and administrative structures, the functions of the departments for the protection, promotion, and restoration of health, and all the instruments for making them viable, such as planning, education and training, and research. The aim and emphasis of the projects in the countries vary according to the degree of their development and the needs of the Governments. We shall refer to only a few of the activities that are described in the *Report*.

The PAHO/WHO Country Representative is normally the person responsible for advising the Ministers and Directors General of Health on general health programs. He is also responsible for coordinating the assistance furnished by advisers or short-term consultants. Where a national health plan is in operation, his task may be more easily discharged, for the Government can identify the areas in which it needs international collaboration and can specify the kind and type of assistance and thus facilitate the work of the Organization in providing it.

Where a national health plan has not yet been prepared, policies and standards exist in regard to the prevalent problems and are the basis for the activities of the public and private service which, when the Government so decides, are supported by other forms of assistance.

Both types of arrangements explain the very varied nature of the projects and the key role of the Country Representative.

* * *

The establishment of a **Medical Care Administration Branch** in the Headquarters Office was meant to reflect the importance the Governments attach to that activity and to underscore the need to expand the advisory services which had been given in recent years. As stated in the publication on medical care policy,¹⁹ medical care is part of the over-all health process, as are the institutions responsible for it. The environment in which collective or social medicine is practiced is the community, and the health of the family, which is more than the sum of that of each of its members, is the focus of its efforts and the purpose to be achieved. In that endeavor there must be no separation between the preventive and the curative services that the State or

¹⁹ *Administration of Medical Care Services—New Elements for the Formulation of a Continental Policy* (Scientific Publication PAHO 129, 1966).

the private agencies give to the family and the community groups whose motivation is extremely useful in achieving general well-being. While the existence of departments with specific functions may be justified at the central level because of the magnitude of the problem and the responsibilities it involves, their activities in the communities must be the responsibility of a single agency.

The Medical Care Administration Branch undertook important activities during the year, including direct advisory services to improve the quality of medical care; planning of hospitals, in particular the joint mission of the Inter-American Development Bank and PAHO to Honduras; establishment of bases for coordination between the ministries of health and the social security institutes in the light of the findings of a survey made in 10 countries, which also served as a basis for the Technical Discussions; rehabilitation projects in four countries, with special emphasis on the training of occupational therapists and physiotherapists and production of prosthetic appliances. As pointed out in the *Report*, the modern conception of rehabilitation has been broadened to include the prevention or diminution of all forms of physical or mental disability in order to retain or restore the maximum of independence to each patient.

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The greater our knowledge of how health and disease develop in the communities, the greater the importance of **nutrition** as a direct or indirect factor in sickness and death and in physical capacity, mental efficiency, and productivity. This is illustrated by the fact that if the mortality rate in children under 5 years of age in Latin America were the same as that in the United States of America and Canada, 700,000 children under 5 years of age would be saved each year. In that age group, protein-calorie malnutrition lessens resistance to environmental hazards, in particular infectious diseases whose attack rate is proportionately greater because of insanitary conditions, ignorance, and a low real income which prevents families from acquiring basic necessities, including preventive and curative services.

The nutrition problem reflects the degree of development of a country and the characteristics of its culture. In view of the multiplicity of factors involved, its solution must be a multidisciplinary one and therefore calls for the effective coordination of national and international institutions of all types. Normally, coordination is effective only when beneficiaries and officials have the same end

in view. A whole range of attitudes and motivations are involved. As was pointed out earlier, each country must draw up a food production program which harmonizes the biological needs of the population and those of the economy and which specifies what is to be exported and what is to be imported in order to satisfy both. When that is done, health workers can apply their techniques, which should include an assessment of the situation in terms of nutritional diseases; establishment of standards for normal growth and development of children and the maintenance of physical and mental health in all age groups; diets for persons in institutions-hospitals, orphanages, and the like; the incorporation into local health programs of activities for the prevention and cure of nutritional diseases and the feeding of the population; the training of professional and auxiliary workers; and basic and operational research. While the agricultural policy to which we have referred is being defined, the activities of our Organization in 1966, the details of which appear in the *Report*, have been directed along those lines.

Progress was made in the establishment of a Caribbean Food and Nutrition Institute under the joint auspices of the Governments of the Region, PAHO, and the Food and Agriculture Organization of the United Nations (FAO). The general objective is to simultaneously promote agricultural production, improve the nutritional level of the inhabitants, and prevent nutritional disease. In addition, the Institute is part of a regional cooperative program which should be extended to other health activities and in which the Governments and the University of the West Indies, in Jamaica, work in close harmony with international agencies.

Headway has also been made in various direct activities concerned with the care of nutritional disorders and the improvement of the diet of well children, in nutrition rehabilitation centers and in the applied nutrition programs. Rehabilitation centers have been organized in seven countries and several others have expressed an interest in them. They are a means of reaching the preschool-age child, especially in the rural areas. At the end of 1966, Costa Rica had 100 such centers.

In that year, 10 applied nutrition programs in 16 countries made satisfactory progress as a result of joint activities of the ministries of agriculture, education, and health and of FAO, UNICEF, and WHO. An evaluation of these programs in 13 countries pinpointed the successes and failures and made it possible to prepare guides for future activities. Although this type of program is a complicated one, its social importance justifies its being expanded and continued.

The *Report* includes full information on the work of the Institute of Nutrition of Central America and Panama (INCAP). Special mention should be made of the continuation of the nutrition surveys begun in 1964, which cover a significant sample of the urban-rural population in each country. The results of these carefully planned samples will, it is hoped, provide a realistic view of the nutritional picture, both normal and pathological. In addition to epidemiological factors that make it possible to determine the trends and the dynamics of nutrition problems, they cover specific questions such as the prevalence of diabetes; electrocardiographic studies; X-ray photographs to determine the growth of the skeleton and osteoporosis; immunological investigations based on the collection of sera; parasitological examinations; state of dentition; sociocultural characteristics. The population actively cooperated in these studies, thanks to adequate motivation, which is not always easy to obtain in the rural areas. The surveys were carried out in cooperation with the Governments concerned and the Office of International Research of the National Institutes of Health of the United States Public Health Service.

In the near future it will be possible to use the extremely valuable information collected for improving the state of health of the people. Furthermore, the correlation of various factors can be analyzed and will add to our knowledge of specific problems and point the way to action programs. Finally, they will lead to new investigations to elucidate important points.

While the production of proteins of animal origin is being increased in Latin America, INCAP has abundantly shown the nutritive value of certain vegetable protein mixtures. Not only has it produced Incaparina, which is widely accepted and consumed; it has also stimulated research in several countries leading to the identification of local protein-rich foods. In 1966 the Institute succeeded in enriching Incaparina with synthetic amino acids at a very reasonable cost. It substantially increased the commercial distribution of the product and opened up new markets.

Reference has already been made in general terms to INCAP's research program. We should now like to mention such specific studies as that on the use of improved varieties of corn whose protein efficiency level has been tested in animals and preschool-age children and shown to be 90-95 per cent of that of casein. If it were possible to introduce the new genetic varieties in Central America, the protein intake of the population would be considerably improved. The *Report* also touches on a series of promising studies on the use of vegetable proteins and describes research on the influence of environmental

factors, in particular biological factors, on the host, with special regard to their effect on the utilization of nutrients. It also summarizes the progress made in studies on the effect of chronic subclinical malnutrition on mental development and on the work capacity and productivity of adults. Studies were also continued on the physiopathology of anemia in protein-calorie malnutrition and on the intestinal functions of malnourished children.

Work to determine the interrelation between infections and nutrition in hospitalized children was completed and showed that severe virus infections such as measles have a certain effect on the protein metabolism that causes a loss of nitrogen beyond that of labile protein estimated for the patients. It was found that the younger the child the more severe the loss.

Considerable work was done by INCAP in 1966 in the field of training and in publications.

At present the Americas have sufficient knowledge and experience of the magnitude, quality, and solutions of the nutrition problem. There would therefore appear to be nothing to prevent the establishment of a policy and action programs which define concrete objectives, methods of achieving them, the manpower needed, national financing, and contributions of external capital. From the health standpoint, the formulation of an agricultural policy whereby the actual and potential availability of protective and energizing foodstuffs at each stage can be ascertained, would considerably facilitate that undertaking. Our Organization will study how it can cooperate in such a regional program.

* * *

"The change in **environmental problems** resulting from rapid urbanization and industrialization continued to reflect itself in a changing pattern of requirements for technical assistance. Most countries now have well-organized and competent staffs, programs, and institutions to manage the basic problems of environmental sanitation and, therefore, the Organization can increasingly provide assistance to the Governments on a broader scale, in more difficult areas, focusing attention on the emerging problems that will become major issues over the next decade: urban environmental planning; comprehensive water pollution and air pollution control systems; industrial hygiene and safety; mass production-assembly line community water supply programs; partnership arrangements in multiple-purpose water resource projects; metropolitan solid wastes collection and dis-

posal; organization, administration, management, and financing of major environmental public works.”

This excerpt from the *Report* describes the main features of the assistance PAHO has given the Governments in environmental health problems, which can only be understood within the framework of the economic system. The account of the progress made in 1966 explains why international efforts are centered on programs concerning more than one country or on new problems.

Of the 70 per cent of the urban population to be served by 1971, according to the Charter of Punta del Este, 68 per cent already enjoy **water supply service**. As for the rural population, only 29 per cent of the estimated figure for that year is being served, whereas the Charter set a goal of 50 per cent. In any event, 52 million persons have already been benefited or are in the process of benefiting, as a result of this major undertaking initiated six years ago. This fact is more striking than the size of the investment, which is very substantial, having already exceeded 1.1 billion dollars of domestic and external funds. The water supply program is an admirable example in the history of public health in the Americas of what can be done about a social demand when the people themselves are willing to contribute to its solution, the Governments are resolved to deal with it rationally, and credit and technical assistance agencies are prepared to help. Once again, special mention must be made of the part played by the Inter-American Development Bank, which is truly the Bank of Progress of Latin America, and by the Agency for International Development of the Government of the United States of America. The many negotiations the Organization conducted with both the Governments and international credit agencies, as well as its direct advisory services to projects, organization and administration of services, and education and training of professional health workers are dealt with in detail in the *Report*. It is to be noted that less headway is being made in the rural areas.

Up to the end of 1966, about 172 million dollars had been invested in **sewerage and water pollution control** in 15 countries; of these, 100 million came from domestic sources.

Work in the field of **occupational health and industrial hygiene**, as well as in that of **air pollution**, has been growing in importance. Preparations continued for the installation of an air pollution network in cooperation with 10 cities and it is hoped that the network will begin operations in 1967. Either through advisory services to the Governments, or through university courses, advances were made in the study or in the application of measures to solve the problem. Reference was

made earlier to the investigations carried out in 1966 by the Institute of Occupational Health and Air Pollution Research in Chile, which was organized with funds from the national Government as well as from the United Nations Development Program.

In the field of **housing**, our Organization has cooperated with the Organization of American States, the Inter-American Development Bank, and the Economic Commission for Latin America in conducting seminars and courses, all of which have emphasized the health aspects of the problem. In addition, a consultant was recruited for the teaching staff of the Inter-American Housing and Planning Center. In Venezuela advisory services on the construction of rural housing and on agrarian planning programs were continued. In Peru and Central America, preparations were made for the establishment of experimental housing projects.

In response to requests from several Governments, assistance was given in improving services for the collection and disposal of **solid wastes**.

* * *

Both the World Health Assembly and the Governing Bodies of the Pan American Health Organization underscored the priority that **communicable diseases** still have in the Americas because they are a direct or associated cause of morbidity and mortality. They have emphasized the need to accelerate efforts to eliminate these diseases from the Hemisphere or to control them and thus to reduce the social and economic losses they entail. They have also pointed out that, in the absence of basic health services, especially in the rural areas, it is difficult to sustain the progress achieved through systematic programs against specific diseases. Consequently, coordination of all the resources at the disposal of the Governments must be strengthened at the national, regional, and local level if the targets established for each disease are to be reached. In the case of eradication, in particular of malaria eradication, these Governing Bodies were well aware that, in view of the enormous costs involved, additional funds must be obtained from either domestic or foreign sources if the duration of the campaign is to be shortened. If further funds become available, even greater emphasis will be placed on the efficiency of the operations directed at each disease, in other words, on the sound administration of services.

If the problem of communicable diseases in the Americas is looked at from the historical standpoint, it is clear that considerable progress has been made. In the course

of the century the major quarantinable diseases have diminished and this diminution justifies renewed efforts to speed up their disappearance. On the other hand, the fact that the incidence of acute and chronic communicable diseases is still high shows that the preventive measures that have proved successful in developed countries are not being used or, if they are, that they are being used at levels lower than those necessary to control the spread of these diseases. Provision must be made in the national health plan, or directly if no plan has yet been prepared, for programs aimed at each disease wherever its known frequency or an international convention justifies its being given priority. If objectives are not defined, it is impossible to obtain on time the manpower needed and the material resources necessary, including the biological or other products a country needs to import to supplement its own production.

Let us look at some of the highlights of the work of the Organization in the field of communicable diseases, the details of which appear in the *Report*.

The population of the **originally malarious areas** was estimated at 166,469,000. By 1966 eradication had been achieved in areas containing 69,760,000 persons, and programs covering 96,709,000 were in operation. In the course of the year appreciable progress has been made in several countries; but in others the situation remains stationary or has retrogressed. Among the latter countries are Mexico and Central America, Ecuador and Paraguay. The major obstacle was usually financial. The growth of the population, like that of the cost of various methods and of salaries, had made it more difficult for the Governments to allot funds on time. Yet in **malaria** work, timing is all important because in all but a few cases the periods of the year in which activities must be carried on are dictated by nature. During 1966 the Organization provided the Governments of Central America, Panama, Ecuador, and Paraguay with advice in connection with negotiations with the U.S. Agency for International Development for loans at reasonable interest rates and on good conditions which will supplement national funds. These loans are expected to lead in the years ahead to renewed impetus which will be reflected in a gradual reduction in the incidence of the disease.

In 1966, as in earlier years, biological problems were encountered. Anopheline resistance to chlorinated insecticides persists, although new insecticides have been tested and proved effective against those species; further knowledge has been gained of extradomiciliary transmission and of vector irritability in the presence of DDT and this has led to mass drug distribution campaigns, the most outstanding of which is that in Haiti; the resist-

ance of certain strains of plasmodia to chloroquine has been reported although it does not appear to have any influence on the natural history of malaria. The various biological and operational research studies that have been carried out are summarized in the *Report*, as are the activities undertaken to solve the above-mentioned biological problems.

In some countries deficiencies in program administration, which is a complex matter, have prejudiced program operations.

Reference has already been made to the urgent need for closer coordination between all levels of the general health services and the malaria eradication services. In the course of the year the first national seminars were held to discuss ways and means of adapting the recommendations of the international seminars held in Brazil and Mexico. This very important development should result in improved performance of the total resources of the country in the fight against malaria, the need for which will be even more strongly felt as further areas are shifted into the consolidation and maintenance phases. To ensure success in that endeavor, all officials should have the same motivation and attitude.

An analysis of the funds assigned to malaria eradication in the Americas shows that an average of US\$0.29 a year has been spent on each person exposed to the risk of the disease or to death. The deaths recorded in 13 countries have plummeted from 43,368 in 1951 to 2,122 in 1965. The indirect economic and social effects of eradication have not yet been carefully evaluated. But a backward glance enables us to appreciate the progress and headway made in the malarious areas which were formerly uninhabited because they were inhospitable. As the disease disappears, those areas can be populated and incorporated into the mainstream of economic life. Nevertheless, the lessons of history must be bolstered by factual data derived from soundly planned research. And such studies are urgently needed because of the sizable investments which are and will be necessary if we are to complete our efforts to free the Americas of malaria. In the competition for funds within the Governments and within international credit organizations, moral arguments relating to life and death must be buttressed by facts and figures.

* * *

In 1966, 160 cases of **jungle yellow fever** were reported in the Americas, an increase of 84 per cent over the 1965 figure. It was due to the spread of a new wave

of the virus from the Amazon basin to southern and south-eastern Brazil and thence to the Provinces of Misiones and Corrientes in Argentina. The largest outbreak occurred in Bolivia, where 69 cases of the disease were reported. Vigorous campaigns have been undertaken in several countries with 17D vaccine prepared in the Oswaldo Cruz Institute of Brazil and the National Institute of Health of Colombia, with which the Organization has continued its agreement for the provision of that essential immunizing agent.

The *Aedes aegypti* eradication program remained practically stationary, owing to biological and administrative problems. On the debit side, mention must be made of the new penetration of the vector into El Salvador and its spread throughout the country.

Residual-action phosphorus insecticides are now available and are effective against *A. aegypti* resistant to chlorinated insecticides. That only points up the administrative and budgetary problems which if left unsolved will prevent Governments from complying with the obligation they accepted 20 years ago. This fact was re-emphasized in Resolution XIX by the XVII Pan American Sanitary Conference,²⁰ which also established criteria for the eradication of *A. aegypti* in Resolution XX.²¹

* * *

In 1966, 3,086 cases of **smallpox** were notified in five countries; of these, 98.4 per cent occurred in Brazil. The activities described in the *Report*, including the preparation of plans, the quality control of vaccine, the use of jet-injectors, and the like, were undertaken as part of the eradication program approved and financed by the World Health Organization.

* * *

In a number of countries, significant progress was made in the activities carried out by the Governments with the assistance of the Organization for the control of **tuberculosis, leprosy, and venereal diseases**. Nevertheless, the number of cases reported is still relatively high considering the results that have been obtained in the developed countries through the application of scientific knowledge and modern techniques. The emphasis in 1966, especially in leprosy and tuberculosis,

was on methods of organizing resources so as to improve performance in terms of a fall in mortality and incidence. Because they are chronic diseases, the registration and a follow-up of patients is essential and that calls for a dynamic administrative organization including periodic evaluations.

The policy established by the Governments of the Organization was applied in various programs, all of which are fully described in the *Report*.

* * *

Special mention must be made of the increase in the resources of the **Pan American Zoonoses Center**. Thanks to the initiative of the Government of Argentina, the United Nations Development Program approved a contribution of \$1,536,700 for the next five years. Together with national funds and funds from PAHO, this support will make it possible to expand advisory services as well as the research and educational activities of the Center. In addition to its present facilities, laboratories, and experimental farm, the Center has acquired further accommodation in Buenos Aires in the National Institute of Health. It will now be possible to undertake the work planned in rabies, bovine tuberculosis, brucellosis, hydatidosis, leptospirosis, and other zoonoses which are of major importance for the health and economy of the Americas. What must be done is to expand what the Center has accomplished in the 10 years since its establishment, the anniversary of which was celebrated in 1966. The Center is gradually becoming a multinational agency serving a growing number of Governments.

All the diseases mentioned above call for an ecological approach which covers all the living species involved in the dynamics of those diseases. There are many unknown factors, especially in rabies, and control methods are not yet unfailingly certain, which is why basic, epidemiological, and operational research studies are essential. Those in brucellosis were aimed at improving diagnostic methods and typing of strains; in hydatidosis, controlled trials of compound 62-415 (Bunamidine) for treating *Echinococcus granulosus* in artificially infected dogs, which revealed that it was a highly effective tenicide; in rabies, assays of live attenuated virus vaccine for cattle and studies to measure the immunogenicity of different strains of virus and to select the best for vaccine and serum production.

In Resolution XXXI,²² the XVII Pan American Sanitary Conference expressed its concern about the im-

²⁰ Official Document PAHO 74, 76-77.

²¹ *Ibid.*, pp. 78-79.

²² Official Document PAHO 74, 91-93.

mediate financial position of the **Pan American Foot-and-Mouth Disease Center** as well as its satisfaction with efforts to stabilize the financing of that Center. This concern reflects the importance of the Center, which is a "focal point" for coordinating the efforts of all the countries of the Americas for the control of foot-and-mouth disease in infected areas and for preventing its spread into areas already clean. What is more, in the course of the year, international credit agencies such as the Inter-American Development Bank and the International Bank for Reconstruction and Development manifested their interest in financing foot-and-mouth disease programs sponsored by the Governments. The ministries of agriculture and schools of veterinary medicine should undertake studies to ascertain the enormous economic losses caused by the disease. Even more serious are the unnecessary losses in meat and milk, especially in Latin America, where the shortage of protein is reflected in the high mortality in children under 5 years of age.

The Center provided Governments with advisory services on vaccination programs. Mention should also be made of its activities in the field of training, distribution of biological materials, information, and research. Further work was done on the development of new inactivated vaccines and modified live virus vaccines, on the production of virus in cell and tissue cultures, and on the persistence of modified live virus in immunized animals. Because they would prejudice the export of meat, modified live virus vaccines are not acceptable in some countries. Studies were therefore made to find a means of destroying or inactivating virus in contaminated meat.

* * *

Although the reported cases of **plague** in 1966 increased by only 6 per cent over 1965, this upward trend has persisted since 1960. It is the culmination of an ecological and cultural process which depends on the habitat of the microorganism in nature and on the cohabitation of human beings and rodents. Because this aspect of the epidemiological chain is going to be very difficult to interrupt, plague control is directed toward limiting the spread of the disease in large urban centers through the destruction of rats and their fleas and the diagnosis and timely treatment of the sick. The Organization increased its activities in 1966, especially in Peru and in Ecuador.

* * *

"The principal **parasitic diseases** in the Hemisphere are schistosomiasis, Chagas' disease, leishmaniasis, onchocerciasis, and intestinal helminthiasis. The gravity of the problem to which they give rise can be illustrated by the fact that more than 6 million persons in the Americas are infected with *Schistosoma mansoni* and probably more than 7 million with *Trypanosoma cruzi*." This excerpt from the *Report* explains the priority that has been given to the first two of these diseases. The appointment of a regional adviser has made it possible to carry out more systematic work in this field, a full account of which is given in the *Report*.

The incidence of epidemic or endemic communicable diseases can be reduced if programs with measurable targets are set up and available resources are used to carry them out. In other words, the necessary program efficiency levels to prevent these diseases from spreading by applying specific methods must be defined, especially in the case of immunization programs. Unfortunately this is not always done, which accounts for the unusual incidence of these diseases and the unexpected epidemic outbreaks. This is a further example of the fact that the establishment of health services throughout the territory of each country is an efficient means of making and maintaining advances.

* * *

The chapter on **education and training** in the *Report* shows the interest and importance the Governments attach to that subject. There has been a renewal of effort in the Americas, in all fields of science and technology, aimed at training professional and auxiliary health workers. It is realized that they are essential factors in development and that its slow pace is in large measure due to the shortage of manpower at the managerial, intermediate, and operational levels. This shortage is clearly evident in the health field, where the great diversity of functions calls for a great diversity of technicians. In addition to knowledge and experience, they must possess a spirit of understanding and tolerance which is rooted in a feeling of empathy with, and devotion to, all other human beings.

The problem today in Latin America, as in other regions of the world, is one of quality and quantity. It is necessary not only to increase the number of health workers but also to raise the level of their scientific training and to facilitate the learning process. Although the number of **schools of medicine** has more than doubled in the last 20 years, the physician/population

ratio continues to be about 5 per 10,000 inhabitants; most physicians reside in urban centers and have a very limited conception of the social importance of their responsibilities. There are wide differences between the standards of teaching in these schools, as there are between the departments within the schools. Medical education must take into account the predominantly governmental nature of the professional practice of medicine, a situation which has its roots in the history and the economic characteristics of Latin America.

This background explains the policy and activities of the Organization in 1966. Advice was given to medical schools in the organization of teaching and the improvement of its quality as well as on advanced training for graduates, a full account of which is given in the *Report*. Further support was given in the field of medical pedagogy; and preparations were made for a sociological investigation to determine the attitudes of instructors and students to preventive and social medicine. The findings of the study will serve as a basis for reforming the present system, where necessary.

Two programs of regional importance are the publication of the quarterly journal *Educación médica y salud*, in cooperation with the Pan American Federation of Associations of Medical Schools, and preparations for providing medical students in Latin America with **text-books** in their own language, the arrangements for which have been recognized by the Governing Bodies of the Organization as feasible.

Closely connected with the idea of upgrading medical education and improving the quality of health services is the **study on health manpower and medical education** being carried out in Colombia under the sponsorship of the Government and with the assistance of the Colombian Association of Medical Schools, the Milbank Memorial Fund, and PAHO. In addition to their bearing on education and health planning, the findings will provide a more accurate picture of the situation in the country with respect to the dynamics of diseases. The vast amount of information collected will be analyzed in 1967 and subsequent years. As these results are obtained, it will be possible to compare what is being taught about the type and frequency of the diseases and the resources needed to solve the problems they entail, with what is occurring in the social environment. At the same time, it will provide us with increased knowledge of how to apply modern techniques without interfering with the way of life of persons and societies, that is, with their culture. Ortega y Gasset has said that the only thing that happens to man is living; all the rest falls inside his life, provokes reactions within it, has a

value and a meaning within it; and therefore the reality of events lies not in the events themselves, but in the indivisible unity of each life.²³ And we can add that the more vital the events, and health events are vital events; the more valid that assertion is.

The shortage of personnel in the field of **nursing** is probably the most serious health manpower problem in Latin America. There are two physicians to every professional nurse, an inverse relationship which unnecessarily increases the cost of the services as the social demand increases. The deficit is made up by nursing auxiliaries, of which there are about 172,000. Unfortunately only 26 per cent have received any systematic training. This situation clearly points to the need for a thorough review of what those persons are doing, and of what they should be doing, in the community and in institutions, in both urban and rural areas. A training program should be drawn up in the light of such a review, a procedure which, we are sure, is not followed today in all the countries. In our opinion there is an urgent need for an educational and operational survey, for as the gap widens between what the people ask for in order to achieve a minimum standard of well-being and what the Governments can offer them, it becomes more and more clear that many functions will have to be discharged by auxiliaries, simply because there are no professionals and because the auxiliaries can be trained in the minimum of time. The most important decision the ministries of health must take in this field is to define the responsibilities of the auxiliaries, especially in isolated communities, a clear dividing line being drawn between what they must do and what they are not entitled to do. This fundamental issue will be raised at the Technical Discussions to be held during the XVII Meeting of the PAHO Directing Council, XIX Meeting of the Regional Committee of the World Health Organization for the Americas, on "Methods of Increasing Health Service Coverage in Rural Areas."

The education and training program in **sanitary engineering** was also stepped up. In recent years the emphasis has been placed on graduate training for engineers. A network of 31 universities has been built up in 18 countries, and 60 intensive and specialized courses, six seminars, and one symposium were held on topics selected by the schools in consultation with government officials. One outcome of these courses has been the preparation of a series of manuals which have been distributed to the Governments and the cooperating universities.

²³ *En Torno a Galileo, Esquema de las Crisis.*

The *Report* also describes the assistance given in a number of fields of fundamental importance for the protection, promotion, and restoration of health. In **dentistry** emphasis was placed on the modernization of teaching programs for undergraduates and graduates, including basic and applied research. In **nutrition**, courses for physicians and other professional health workers were held in various countries and institutions. Mention must be made of the training of nutritionists, whose number needs to be urgently increased if nutrition activities are to be incorporated into community feeding programs. In **vital and health statistics**, education and training was carried out at the professional, intermediate, and auxiliary levels; in the courses for auxiliaries, 848 persons were trained in 13 countries. In **social pediatrics**, courses were held in two international centers sponsored by our Organization, one at the University of Antioquia in Medellín, Colombia, and the other at the University of Chile in Santiago, and in 1966 a program of pediatric education was set up at the University of Recife, Brazil, with the support of the Josiah Macy, Jr. Foundation. In **health planning**, the fifth international course was held in cooperation with the Latin American Institute for Economic and Social Planning, and courses for professional health workers responsible for the preparation of national health plans were conducted in seven countries. In **administrative methods and practices**, seminars were held in Trinidad and Tobago, Peru, Paraguay, and Chile.

These training activities, the social effects of which can be measured by such indicators as health plans and programs and the reduction in mortality and morbidity, were supplemented by **fellowship** programs. In 1966, 854 fellowships were awarded, an increase of 3 per cent over 1965; this upward trend dates from 1959. The average length of each fellowship was 4.7 months, a suitable average considering that 64 per cent of the fellowships were short term. It also shows that in the Americas there has been a gradual improvement in the quality of training institutions and that interest is increasingly focused on specialized studies abroad. It is from this standpoint that the account of fellowship activities in the *Report* should be viewed.

The very full description of education and training activities—which covers only those programs in which PAHO participated—shows that the Governments are well aware of the value of human resources in promoting development and achieving well-being. The magnitude of the efforts made by educational institutions on their own becomes evident only when one learns what they have done with international assistance. Nevertheless,

these efforts must be accelerated because the demand is increasing and the gap between needs and resources is widening.

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The **health aspects of population dynamics** have been incorporated into the policy and the activities of the World Health Organization and the Pan American Health Organization. The resolutions of their Governing Bodies²⁴ outline the principles of this policy and the framework within which it should be applied. The Conference approved the establishment within the Bureau of an Office of Health and Population Dynamics, including a Population Information Center. It laid emphasis on the establishment of education and research training centers on the health aspects of population dynamics. In line with this policy, the first course for instructors in medical schools and other professional health workers was held in 1966 at the University of Chile and dealt with various aspects of this complex question. It is hoped that in the future this program will be a multidisciplinary one as far as both participants and curriculum are concerned. In our opinion the Governments are likely to decide to set up within their ministries of health units for the registration of data on population trends and development, and for preparing projections which, in the case of development, will take its basic components into consideration. If that were done, national policy could be formulated or strengthened, as the case may be, and changes introduced into it in the light of periodic examinations of the information collected.

Arrangements were made to hold a similar course at the University of São Paulo, Brazil, in 1967.

The Second Conference on Population Dynamics, held in January 1966, was attended by representatives of 38 universities, national and international agencies, and foundations active in this field in Latin America. The Conference expressed its interest in having PAHO act as an information center to analyze and systematize the presentation of the data furnished by the above-mentioned institutions. As stated above, the XVII Pan American Sanitary Conference approved that suggestion.

The PAHO/WHO resolutions mentioned earlier state that the Organization's assistance is only to be considered when a Government has already established its own health and population policy. Furthermore, that policy

²⁴ See footnote 3 on p. xii.

is to be applied through educational activities in family planning provided in the maternal and child health services. The size of each family is to be the free choice of each individual family, in other words, responsible parenthood. When these requirements have been satisfied, the Organization may give technical advice when requested to do so by the Governments.

* * *

The *Report* also contains a full account of what is today called "scientific communications," that modern discipline which has put into practice the basic ideas of cybernetics. During the year, a total of 61 **publications** were issued, in addition to the monthly *Boletín* and a new quarterly journal on medical education, *Educación médica y salud*. All these publications contain background and experience which are of interest for the theoretical and practical study of health problems.

In 1966 significant efforts were made in the field of **public information**, including coverage of major activities in the Region and replies to inquiries from institutions and persons seeking information about the international health activities of WHO and PAHO.

* * *

The final chapter of the *Report* contains a summary of the **545 projects** carried out in 1966 by the Governments with the Organization's assistance. It also deals with the variegated **administrative activities** of the Organization, for which one of the most important resources is the general or specialized consultant who makes his knowledge and experience available to colleagues in the country concerned for solving a specific problem. As of 31 December 1966, the total staff numbered 1,125, of whom 808 were field staff. During the year 517 short-term consultants and temporary advisers were employed. Anyone who has had experience in the recruitment of personnel will know what a complicated process it is, especially the recruitment of international personnel.

The External Auditor in his Report stated that "the financial situation of the Organization has not been as sound since 1951, as it was at the end of 1966." This is reflected in the level of the Working Capital Fund, the reserve capital, and the collection of current quotes

and quotas in arrears, which in 1966 together amounted to 106 per cent of the authorized appropriation.

The system of program budgeting was improved, and the use of electronic computers was extended to pension fund information and to fellowships, studies on medical care, and evaluation, in addition to the preparation of personnel actions.

* * *

Coordination with agencies of the United Nations and institutions of the Inter-American System were strengthened. The work of the Liaison Office, which was heavily engaged in this activity, is described in detail in the *Report*. Mention must be made of the Fourth Annual Meetings of the Inter-American Economic and Social Council at the Expert and the Ministerial Levels, at which a number of resolutions relating to health were approved. Of major importance were the negotiations undertaken with the Inter-American Development Bank on various aspects of its health investment policy, and with the United Nations Development Program for the establishment of a Pan American Center for Health Planning and an International Laboratory for the Control of Pharmaceutical Products. Several projects were carried out in collaboration with UNICEF, FAO, and the Organization of American States, and with the W. K. Kellogg Foundation, the Milbank Memorial Fund, the Williams-Waterman Fund, the Nutrition Foundation, the Josiah Macy, Jr. Foundation, and the Rockefeller Foundation, among others. As regards malaria eradication and water programs, special mention must be made of the Agency for International Development of the Government of the United States of America. As in the past, this joint governmental and private effort was carried on in full mutual understanding, the aim being to make the potential resources of each institution available to the Governments. It is no easy endeavor, but each year progress is made. In practice, it takes the form of a great many delicate negotiations which, in the final analysis, are human relationships in which, with due consideration to the nature and operation of each organization, the final aims are identified. As was said earlier, the systematic formulation of programs will considerably simplify this joint effort.

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REPORT OF THE DIRECTOR

According to Lederberg,²⁵ man's unique quality is his self-conscious awareness of history. Every man looks back at a cultural tradition that, whether he understands it or not, has molded his personality, his language, his capacity to cope with the external world. He looks ahead

²⁵ Lederberg, Joshua: "Science and Man: The World of the Future." *The Washington Post*, 8 July 1967.

to a posterity and around himself to a community of other men on whom his own life inevitably impinges.

If we thus define the being who is the prime focus of all the efforts of health workers, it is easy to see that the science and art of health is a cluster of biological and social disciplines which can be rationally applied only if human beings are viewed in their cultural frame.

I. PROTECTION OF HEALTH

A. ERADICATION OR CONTROL OF DISEASES

MALARIA

During 1966 a number of advances were made toward the eradication of malaria in the Hemisphere. The over-all picture can be seen in Figure 1 and Table 1. Of the total estimated population of 166,469,000 in originally malarious areas, eradication of the disease has been claimed (maintenance phase) in areas with a population of 69,760,000 and eradication programs are in progress in areas with a total of 96,709,000 inhabitants. Population in areas in the consolidation phase of the program reached 36,392,000; in the attack phase, 43,105,000; and in the preparatory phase, 17,212,000.

In Brazil large new areas were brought into the attack phase and protection was extended to millions of additional inhabitants; in Colombia smaller areas were added to the network of attack operations. In the programs of Cuba and of the Dominican Republic attack measures continued to be successful; evaluation operations were improved in both countries and in Cuba the first areas were placed in the consolidation phase. In Haiti the program that was undertaken to utilize collective medication with antimalaria drugs as the primary attack arm in a population of three quarters of a million proved in fact to underestimate the requirements and was successfully expanded to cover approximately 1.75 million inhabitants at its peak. The results appeared to be satisfactory, and the population receiving medication had been reduced to 300,000 by the end of 1966.

Some areas in Brazil were reclassified into the consolidation phase, as were also some small areas in Ecuador. Brazil also has classified an area in Guanabara State, with some 700,000 inhabitants, into the maintenance phase. In Peru large areas containing approximately one million inhabitants along the Pacific coast that had been in the consolidation phase were shifted into the maintenance phase, under the responsibility of

the general health services. In accordance with an agreement covering operations in the Cauca Valley in Colombia, which is in the consolidation phase, the departmental general health services have assumed responsibility for surveillance, with technical guidance from the National Malaria Eradication Service.

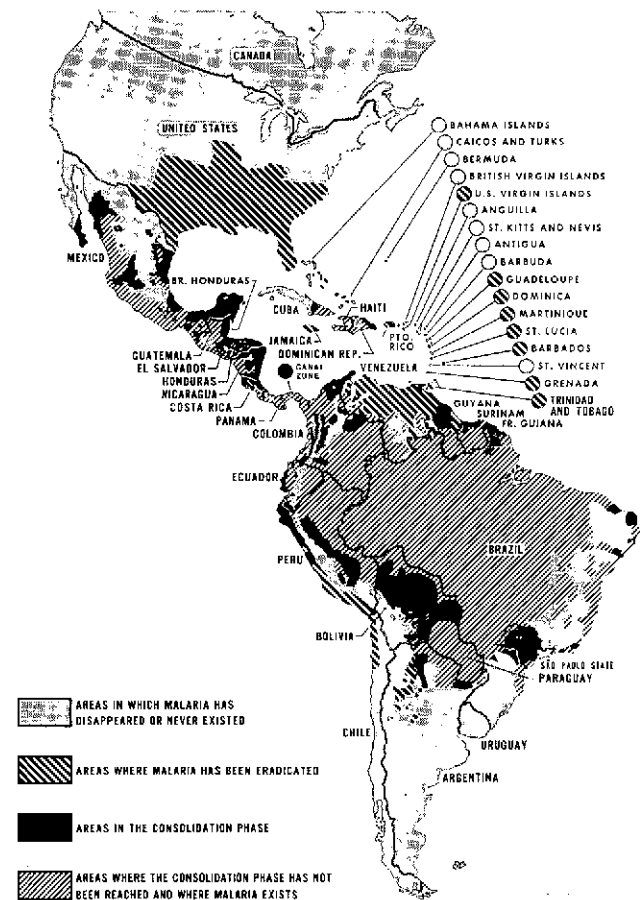


FIG. 1. STATUS OF THE MALARIA ERADICATION PROGRAM IN THE AMERICAS, DECEMBER 1966.

TABLE I. STATUS OF MALARIA ERADICATION IN THE AMERICAS, BY POPULATION, 1966
Population in thousands ^a

Country or other political unit	Total population of country or other political unit	Population in areas where malaria was never indigenous or disappeared without specific anti-malaria measures	Population in originally malarious areas					
			Total in original malarious areas	Eradication claimed (maintenance phase)	Eradication programs in progress			Total
					Consolidation phase	Attack phase	Preparatory phase	
Antigua.....	61	61	—	—	—	—	—	—
Argentina.....	22,300	19,462	2,838	1,381	454	798	205	1,457
Bahamas.....	136	136	—	—	—	—	—	—
Barbados.....	247	247	—	—	—	—	—	—
Bermuda.....	50	50	—	—	—	—	—	—
Bolivia.....	4,482	3,060	1,422	—	1,202	220	—	1,422
Brazil ^b	81,935	45,688	36,247	733	6,515	13,976	15,023	35,514
British Honduras.....	107	—	107	—	107	—	—	107
Canada.....	19,571 ^c	19,571	—	—	—	—	—	—
Canal Zone.....	50	—	50	—	50	—	—	50
Chile.....	8,884	8,729	155	155	—	—	—	—
Colombia.....	18,791	8,500	10,291	—	8,194	2,038	59	10,291
Costa Rica.....	1,514	1,055	459	—	276	183	—	459
Cuba.....	7,832	5,488	2,344	—	451	1,893	—	2,344
Dominica.....	67	50	17	17	—	—	—	—
Dominican Republic.....	3,697	608	3,089	—	583 ^d	2,506	—	3,089
Ecuador.....	5,106	2,333	2,773	—	1,327	1,446	—	2,773
El Salvador.....	3,011	961	2,050	—	—	2,050 ^e	—	2,050
Falkland Islands.....	2	2	—	—	—	—	—	—
French Guiana.....	38	—	38	24	11	3	—	14
Grenada and Carriacou.....	97	65	32	32	—	—	—	—
Guadeloupe.....	312	35	277	277	—	—	—	—
Guatemala.....	4,646	2,576	2,070	—	—	2,070 ^f	—	2,070
Guyana.....	669	—	669	627	30	12	—	42
Haiti.....	4,464	964	3,500	—	—	3,500	—	3,500
Honduras.....	2,186	274	1,912	—	1,563	349	—	1,912
Jamaica.....	1,838	367	1,471	1,471	—	—	—	—
Martinique.....	330	125	205	205	—	—	—	—
Mexico.....	41,929	20,829	21,100	—	12,794	8,306	—	21,100
Montserrat.....	14	14	—	—	—	—	—	—
Netherlands Antilles.....	211	211	—	—	—	—	—	—
Nicaragua.....	1,764	69	1,695	—	665	1,030 ^g	—	1,695
Panama.....	1,286	51	1,235	—	—	1,235	—	1,235
Paraguay.....	2,214	289	1,925	—	—	—	1,925	1,925
Peru.....	12,011	7,833	4,178	1,044	1,962	1,172	—	3,134
Puerto Rico.....	2,669	320	2,349	2,349	—	—	—	—
St. Kitts, Nevis, Anguilla.....	60	60	—	—	—	—	—	—
St. Lucia.....	109	16	93	93	—	—	—	—
St. Pierre and Miquelon.....	5	5	—	—	—	—	—	—
St. Vincent.....	88	88	—	—	—	—	—	—
Surinam.....	346	136	210	—	141	69	—	210
Trinidad and Tobago.....	1,020	148	872	872	—	—	—	—
United States of America.....	195,857	141,685	54,172	54,172	—	—	—	—
Uruguay.....	2,749	2,749	—	—	—	—	—	—
Venezuela.....	8,822	2,243	6,579	6,263	67	240	—	316
Virgin Islands (U.K.).....	9	9	—	—	—	—	—	—
Virgin Islands (U.S.A.).....	45	—	45	45	—	—	—	—
Total.....	463,631	297,162	166,469	69,760	36,392	43,105	17,212	96,709

— None.

^a Figures have been rounded to the closest thousand. Population estimates are those provided in the country reports on malaria. When country data were not available, figures were based on the United Nations *Demographic Yearbook* (1965).

^b Revised data for federal program.

^c Estimated as of 1 June 1965.

^d Spraying suspended; areas under consolidation.

^e Beginning 1967 an area with 388,070 inhabitants will be shifted into the consolidation phase.

^f Includes an area with 328,540 inhabitants in which spraying was suspended.

^g Includes an area with 242,529 inhabitants in which spraying was suspended.

In other programs, however, matters have taken another turn. In Guatemala, consolidation areas still not reinfected after several years of inadequate financing and limited operations were considered too dispersed to be maintained in that phase, and the entire program was put back into the attack phase as of 1 April 1966. In Nicaragua, where the program has also been operating on a submarginal budget for a number of years, a relatively small area that had been in the consolidation phase became reinfected and was returned to the attack phase. The new consolidation-phase areas in the interior of Guyana, which entered that phase in 1965, suffered a setback early in 1966 when an outbreak of *Plasmodium vivax* malaria was discovered among the Amerindians of the remote interior; this focus produced more than 800 cases during the year. The attack phase was resumed and consisted of DDT house spraying in semi-annual cycles and distribution of medicated salt.

Maintenance areas in Argentina and in Venezuela continued to experience cases because of the pressure from neighboring malarious areas. In Tobago, where no case of malaria had been found in 13 years, an outbreak of *P. malariae* infection occurred. The outbreak, in which 40 cases were found, apparently has been brought completely under control and it will be followed up as a case-study of quartan malaria.

Opposing trends can be noted in preparatory-phase areas. While in Brazil large additional areas were brought under attack, in Paraguay, all of which had been in the preparatory stage since 1961 pending provision of financing, an epidemic of malaria has been spreading and during the year 33,037 cases of the disease were confirmed.

In the problem area of Central America only limited operations could be financed with the budgets available. The major breakthrough was the signing of the loan agreements that had been under negotiation, thereby assuring a satisfactory budget level for the programs in the five countries of this area, at least during the next few years. The intensified coordinated programs planned are scheduled for implementation during the first quarter of 1967 at the latest. Panama expects soon to be able to assure funds through similar loan agreements. The program in Mexico had to proceed with the same inadequate budget as in the previous year. Portions of the projected six-year plan were put into operation where possible during 1966.

In South America the program in Ecuador was largely paralyzed in 1966 because of lack of funds, and the solution of this difficulty is not imminent. In Colombia, on the other hand, the financial obstacles in the campaign

were successfully overcome at mid-year, and the country is in the process of initiating the increased activities required in order to attack transmission in the difficult areas where it subsists.

The aspects of malaria eradication to which the Organization must give attention are multiplying as eradication is achieved in some areas while in other areas all the various stages of the campaign are under way. The emergence of collective treatment programs with antimalaria drugs as a major complement to the attack on transmission in areas refractory to residual insecticide methods places many demands on the Organization's advisers, owing to the continuing need for meticulous management of such programs in relation to health education of the population, selection and training of personnel for field operations, organization and management of treatment, evaluation of results, and rapid coping with problems as they arise.

Epidemiological Evaluation

Since a delay of more than one year intervened between the planning of total attack operations in the Central American countries and Panama and the availability of funds to implement these plans, a new evaluation of the current situation was carried out in November by two independent assessment teams, each headed by a short-term consultant malariologist and including PAHO staff from outside Central America and personnel from the Communicable Disease Center of the U. S. Public Health Service. These teams reviewed the situation and recommended changes in classification of areas and in plans of operations.

Outside evaluation was also carried out at six-month intervals in the programs of Cuba, of the Dominican Republic, and of Haiti; the recommendations of the assessment teams formed the basis for operating plans in the succeeding periods.

Prevention of Reintroduction of Malaria

The stimulation of surveillance activities in maintenance areas, both in countries that have other areas in less-advanced stages and in countries that are entirely in the maintenance phase, continues to be an important activity of the Organization. Furthering of the participation of the general health services in all phases of eradication campaigns is actively pursued by country malaria advisers and by two full-time staff members.

A Seminar on the Prevention of Re-Establishment of Malaria in Areas Where the Disease Has Been Eradicated was held from 14 to 18 November at PAHO Headquarters in Washington, D.C., under the sponsorship of the World Health Organization. Participants attended from 17 countries: Bulgaria, China, Cyprus, El Salvador, Guyana, Hungary, India, Iran, Israel, Jamaica, Lebanon, Spain, Trinidad and Tobago, United Republic of Tanzania, United States of America, U.S.S.R., and Venezuela.

Training activities for malaria eradication programs are discussed in Chapter III of this Report (Education and Training). Research activities in malaria are reported on in Chapter V (Research).

YELLOW FEVER CONTROL AND AEDES AEGYPTI ERADICATION

Yellow Fever

In 1966, 160 cases of yellow fever, 84 per cent more than in 1965 (87 cases), were reported in the Americas (Table 2 and Figure 2). All the cases were of the jungle variety.

The outbreak that began in Argentina in the latter part of 1965 as the virus spread from the Amazon basin to southern and southeastern Brazil continued in the early months of 1966 in the Provinces of Misiones and Corrientes, where it produced 51 cases and 8 deaths. In these provinces 95.8 and 77.0 per cent, respectively, of the susceptible population was vaccinated. The total number of immunizations in the Provinces of Misiones, Corrientes, Formosa, Jujuy, Chaco, and Salta was 839,224 (50 per cent of their combined population). Brazil and Uruguay conducted joint immunization campaigns in their areas bordering Argentina. The vaccine used was

TABLE 2. REPORTED CASES OF JUNGLE YELLOW FEVER IN THE AMERICAS, 1965 AND 1966^a

Country	1965	1966
Argentina.....	2	51
Bolivia.....	19	69
Brazil.....	14	22
Colombia.....	2	3
Peru.....	45	10
Venezuela.....	5	5
Total.....	87	160

^a Based on official reports received at PASB through 20 May 1967.

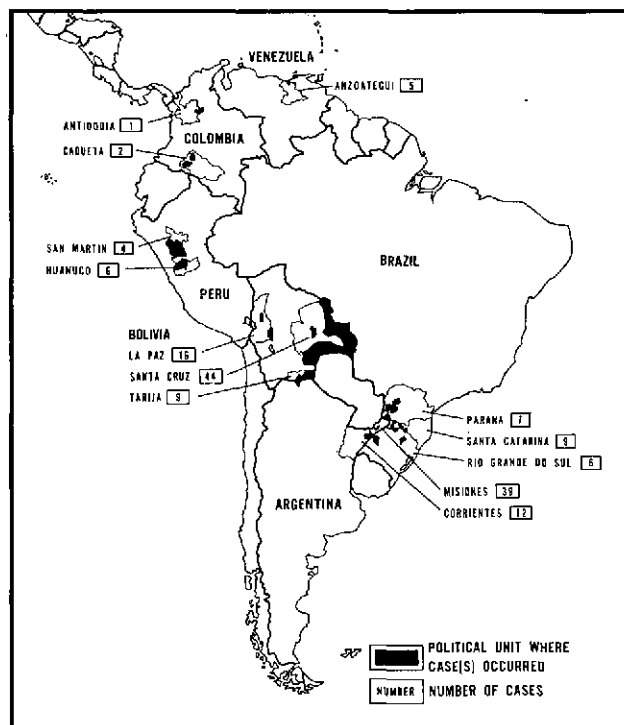


FIG. 2. REPORTED CASES OF JUNGLE YELLOW FEVER IN THE AMERICAS, 1966.

donated by the Governments of Brazil and Colombia through PAHO.

Investigations of vectors and reservoirs showed that this region of Argentina was still free of *Aedes aegypti*. As a result of studies of epizootics of undetermined origin among primates and of serum protection of the population against yellow fever, it was concluded that certain parts of the Provinces of Chaco, Salta, and Misiones, and an area in northeastern Corrientes, had been invaded by the virus in previous years.

In Bolivia 69 cases were reported: 16 in the Department of La Paz, 44 in Santa Cruz, and 9 in Tarija.

In Brazil the virus continued to travel southward through the State of Rio Grande do Sul (as far as the Provinces of Misiones and Corrientes in Argentina), and in a southeasterly direction to the States of Paraná, Santa Catarina, and the northern part of Rio Grande do Sul. The 22 cases reported in 1966 occurred in the States of Paraná (7), Santa Catarina (9), and Rio Grande do Sul (6).

In Colombia three cases were diagnosed in two different regions of the country: two in the District of Caquetá and one in the Municipality of Remedios, Department of Antioquia. At the end of the year Colombia had 118 viscerotomy stations, of which, however, only

51 (43 per cent) were in operation. A total of 839 specimens were received in 1966, and 67,653 persons were vaccinated against yellow fever.

In Peru 10 cases were reported: six in the Department of Huánuco and four in San Martín, in the valleys of Amazon tributaries.

Five cases were reported in Venezuela, all in the Municipality of Pozuelos, Anzoátegui State. The patients were farmers and contracted the infection while harvesting coffee or tilling the fields in the rural communities near the Neverí River and its tributaries, in the foothills of the coastal range. A large-scale vaccination campaign was conducted in the affected area, which included Sucre State and extended to Cojedes State to the west. The vaccine was provided by the Governments of Brazil and Colombia through PAHO.

The Organization continued to cooperate with the Oswaldo Cruz Institute of Brazil and the National Institute of Health of Colombia, which produce type 17D yellow fever vaccine and render free diagnostic services to other countries of the Americas and other regions of the world. In 1966 Brazil produced 10,585,200 doses of vaccine, of which 981,000 were distributed to six countries; Colombia produced 721,130 doses and shipped a total of 928,870 doses to 19 countries and territories.

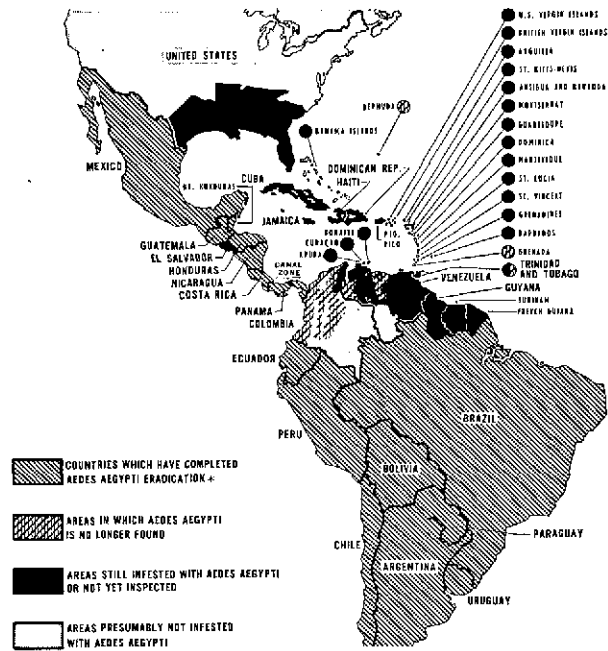
In view of the yellow fever outbreak in the frontier areas of Argentina and Brazil, the Argentine authorities sponsored a border meeting in Puerto Iguazú, held from 29 to 31 May, to determine the geographic extent of the outbreak, consider what measures of international coordination were needed, and study the problems of vaccine supply. The meeting was attended by representatives of Argentina, Brazil, Paraguay, Uruguay, and staff of the Organization.

Aedes aegypti Eradication

Up to December 1966 the following had been declared free of *Aedes aegypti*: Argentina, Bolivia, Brazil, British Honduras, Chile, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Canal Zone, Paraguay, Peru, and Uruguay.

Technical and administrative problems continued to impede the progress of eradication in the areas still infested, which included the extreme northern part of South America, one country in Central America, part of the United States of America, and the Caribbean area (Figure 3).

In South America, French Guiana, Guyana, Surinam, and Venezuela, as well as two localities in Colombia, were still infested.



* ERADICATION CARRIED OUT ACCORDING TO THE STANDARDS ESTABLISHED BY THE PAN AMERICAN HEALTH ORGANIZATION

FIG. 3. STATUS OF THE *Aedes aegypti* ERADICATION CAMPAIGN, DECEMBER 1966.

Eradication of *A. aegypti* had been completed in Central America several years earlier, but in June 1965 El Salvador, which had been negative since 1957, was found to be reinfested.

In the United States of America eradication activities were begun in 1964, but at the end of 1966 the program still covered only part of the area presumed infested and the results achieved were limited.

In the Caribbean area the campaign entered its final phase in Trinidad, where in recent years only small reinfestation foci have been found, and continued to progress in Cuba, although with limited results. Eradication activities were still suspended in the British Virgin Islands, Dominica, the Dominican Republic, Guadeloupe, Haiti, and Jamaica. The campaign in the remainder of the area was either stagnant or progressing very slowly, and the results were not satisfactory.

One of the obstacles that hampered the campaign in the Caribbean and in northern South America was the resistance of the vector to chlorinated insecticides. This problem has now lost much of its importance because a number of phosphorus compounds with a long residual action are currently on the market and are effective against *A. aegypti* resistant to chlorinated insecticides. The solution of this problem, however, will not in itself solve the problem of eradicating the vector from these

TABLE 3. STATUS OF THE Aedes Aegypti ERADICATION CAMPAIGN IN THE AMERICAS, 1966^a

Country or other political unit	Date		Area assumed initially infested		Localities or other units inspected since beginning of campaign					Present stage of campaign
	Campaign began	Latest inspection	Total (km ²)	Inspected (%)	Number	Found initially positive				
						Total	Treated		Still positive	
							Total	Verified		
Total	Total	Total	Still positive							
Argentina.....	June 1953	Sept. 1966	1,000,000	100.0	3,741	165	165	165	—	b, c
Barbados.....	Mar. 1954	Dec. 1966	171	100.0	99	98	98	98	40	d, e
Bolivia.....	June 1932	Feb. 1955	100,000	100.0	282	65	65	65	—	b
Brazil.....	Jan. 1931	Sept. 1966	5,358,822	100.0	268,576	36,119	36,119	36,119	—	b, c
Chile.....	June 1945	Dec. 1966	104,373	100.0	301	48	48	48	—	b, c
Colombia.....	Nov. 1950	Dec. 1966	280,000	100.0	3,801	355	353	353	2	d, e
Costa Rica.....	April 1949	May 1955	20,000	100.0	1,342	104	104	104	—	b
Cuba.....	Mar. 1954	Dec. 1966	100,000	34.4	1,134	897	867	859	100	d, c
Dominican Republic.....	Oct. 1952	Aug. 1962	42,020	80.4	1,420	351	351	319	15	d
Ecuador.....	June 1946	Dec. 1966	69,454	100.0	2,824	337	337	337	—	b, c
El Salvador.....	April 1949	Dec. 1966	18,675	100.0	973	190	190	190	16	d, c
Guatemala.....	Jan. 1949	Dec. 1966	36,423	100.0	2,485	138	138	138	—	b, c
Guyana.....	Mar. 1946	Dec. 1966	4,662	100.0	93	21	21	21	3	d, e
Haiti.....	Oct. 1953	Sept. 1958	27,750	49.4	2,379	605	602	435	27	d
Honduras.....	Sept. 1949	Dec. 1966	69,929	100.0	600	53	53	53	—	b, c
Jamaica.....	Feb. 1950	Mar. 1966	11,424	100.0	14	12	2	2	2	d
Mexico.....	Jan. 1951	Dec. 1966	1,000,000	100.0	4,279	600	600	600	—	b, c
Nicaragua.....	Jan. 1950	Dec. 1966	65,263	100.0	3,126	18	18	18	—	b, c
Panama.....	Feb. 1949	June 1960	56,246	100.0	2,853	44	44	44	—	b
Paraguay.....	Jan. 1948	Dec. 1966	200,000	100.0	1,561	98	98	98	—	b, c
Peru.....	Jan. 1940	Dec. 1964	638,000	100.0	4,320	191	191	191	—	b
Trinidad and Tobago.....	Jan. 1951	Sept. 1966	3,108	100.0	128	122	122	122	1	d, e
United States of America.....	May 1964	Mar. 1966	1,550,000	80.5	644	243	23	23	23	d, c
Uruguay.....	Oct. 1948	Dec. 1966	187,000	100.0	1,020	133	133	133	—	b, c
Venezuela.....	June 1948	Dec. 1966	710,000	71.8	6,162	734	701	661	91	d, e
Anguilla.....	Apr. 1953	June 1965	88	100.0	19	19	19	19	18	d
Antigua.....	Aug. 1954	Feb. 1964	283	100.0	50	47	47	47	25	d
Aruba.....	Mar. 1952	June 1966	174	100.0	9	9	9	9	3	d, e
Bahamas.....	June 1954	Dec. 1966	11,396	1.3	13	10	10	10	10	d, e
Bermuda.....	Jan. 1951	1963	53	100.0	9	9	9	9	—	f
Bonaire.....	Sept. 1952	Dec. 1966	246	100.0	6	6	6	6	2	d, e
British Honduras.....	Oct. 1950	Dec. 1966	22,965	100.0	84	2	2	2	—	b
Canal Zone.....	1948	Nov. 1966	1,432	100.0	21	2	2	2	—	b, c
Cayman Islands.....	—	—	259	—	—	—	—	—	—	d
Curacao.....	Oct. 1951	Dec. 1966	448	100.0	5	5	5	5	5	d, e
Dominica.....	Feb. 1951	June 1965	789	50.0	136	66	66	66	16	d
French Guiana.....	May 1949	Mar. 1964	91,000	100.0	222	55	55	55	3	d
Grenada.....	Nov. 1952	July 1959	311	100.0	8	8	8	8	—	f
Grenadines.....	Nov. 1952	June 1962	65	100.0	7	5	5	5	4	d
Guadeloupe.....	Jan. 1957	Oct. 1961	1,619	4.9	53	38	38	27	20	d
Martinique.....	Nov. 1953	Sept. 1966	1,000	100.0	34	21	19	19	12	d, e
Montserrat.....	May 1956	Dec. 1966	83	100.0	33	16	16	16	3	d, e
Puerto Rico.....	Sept. 1964	Mar. 1966	8,896	48.5	48	48	32	32	32	d, e
Saba, St. Eustatius.....	July 1958	Aug. 1959	31	100.0	16	15	15	15	—	f
St. Kitts, Nevis.....	Apr. 1953	June 1965	308	100.0	43	43	43	43	7	d
St. Lucia.....	May 1953	Dec. 1966	259	100.0	50	50	50	50	37	d, e
St. Martin.....	Dec. 1958	Mar. 1964	34	100.0	18	15	15	15	15	d
St. Vincent.....	Mar. 1953	Mar. 1965	332	100.0	8	8	8	8	—	d
Surinam.....	Dec. 1962	Dec. 1966	48,000	30.0	34	34	34	34	34	d, c
Turks and Caicos Islands.....	—	—	430	—	—	—	—	—	—	d
Virgin Islands (U.K.).....	Mar. 1960	Feb. 1963	174	74.6	23	23	23	23	8	d
Virgin Islands (U.S.A.).....	Aug. 1964	Mar. 1966	344	100.0	3	3	3	3	3	d, e

— None.

... Data not available.

^a Based on official reports received at PASB through 28 February 1967.^b Eradication completed.^c With vigilance.^d Positive for *Aedes aegypti*.^e Program in operation.^f Negative for *Aedes aegypti*.

areas, since it will also be necessary to overcome the following additional difficulties: (a) insufficient financing to provide proper coverage of infested areas; (b) deficient organization and administration; (c) personnel problems, which adversely affect the quality of field work; (d) inadequate vigilance against the reintroduction of the mosquito into areas already free; and (e) absence of, or non-compliance with, the legislation needed to support the campaign.

Table 3 shows the status of the eradication campaign throughout the Hemisphere. A summary is given below of the activities carried on in each country and territory in which the problem still existed at the end of 1966.

Barbados. Despite the continued use of fenthion, to which *A. aegypti* strains in the country have shown extreme susceptibility, the results obtained were limited. This was attributed to the difficulties encountered in field work.

Colombia. Although eradication was completed in 1961, recurrent reinfestations were detected in September of that year in the cities of Cúcuta and San Luis near the Venezuelan border and in the precincts of the port of Santa Marta on the north coast; these were eliminated, but at the end of 1965 Cúcuta was again found to be reinfested. The latter reinfestation still had not been entirely eliminated by the end of 1966. The Santa Marta port area, which became reinfested once again in September 1966, was treated immediately, but a verification carried out in December revealed that two of the 458 houses inspected still harbored *A. aegypti*.

Except for those two localities, the country was considered to be free of the vector.

Cuba. Activities continued to center mainly on the Provinces of Pinar del Río, Havana, and Matanzas. Besides those areas, eradication work was confined to a few municipalities in Las Villas Province.

In 1966 an initial survey was made in 200 localities in these provinces and a verification was carried out in a further 1,000 localities. A total of 346 were treated. Of the 200 localities inspected for the first time, 122 were found to be harboring *A. aegypti*; of the 1,000 localities verified, 291 were found to be still infested. During these operations a total of 804,743 houses were inspected, 14,240 were found to contain *A. aegypti*, and 188,949 were treated.

The results achieved during the year fell short of expectations. The Government studied the possibility of incorporating the campaign into the public health services and expanding it in such a way that the work would be carried on simultaneously in all infested areas, with a

view to preventing repeated reinfestations and completing eradication within three or four years.

Dominican Republic. The campaign was halted in 1962 and has not yet been resumed.

El Salvador. Although this country was declared free of the vector in 1960, in June 1965 it was discovered that part of San Salvador had become reinfested and eradication work was therefore resumed immediately. Early in 1966 it was confirmed that the entire city was infested, as were 24 neighboring localities. It was believed that the vector had found its way into the city again through mosquito eggs brought into the country in used motor tires imported from a country still infested.

A survey carried out by the Government in September 1966, with the cooperation of personnel from the U.S. Public Health Service and PASB, revealed that many other areas in the country had also become reinfested. Because of the small number of personnel available, eradication work in 1966 was confined to the city of San Salvador and the international airport at Ilopango. Even so, it proved impossible to maintain eradication work at a high enough level in these two localities, so that the net achievement of the campaign was very limited.

Guyana. This country was found to be extensively reinfested in 1962, after being free of *A. aegypti* for several years, but eradication work was not resumed until 1965. Up to December 1966 activities remained confined to Georgetown, where, despite repeated treatments, the results were unsatisfactory. This was attributed to technical and administrative difficulties, among which were the low susceptibility of the mosquito to chlorinated insecticides and shortcomings in the field work.

Haiti. The campaign, suspended in 1958, was not resumed.

Jamaica. The eradication campaign, which was discontinued in 1961, was not resumed. In 1966 the country's *A. aegypti* campaign once again was limited to control measures at the international airports and port areas of Kingston and Montego Bay.

Trinidad and Tobago. In Trinidad *A. aegypti* was found only in the port area of Port-of-Spain and on small craft from other Caribbean ports that are still infested. The repeated reinfestations of this city over the past four years are believed to be due to these vessels, and despite continuous efforts to cope with the problem it had not been solved by year's end.

The island of *Tobago* continued to be regarded as free of the vector.

United States of America. At year's end eradication activities covered only part of the area presumed infested, which includes approximately 1,550,000 km² in part or

all of the territory of nine states in the southeastern part of the United States, in addition to Puerto Rico (8,896 km²) and the Virgin Islands (344 km²). By March 1966 the initial survey had been carried out in 644 localities on the mainland, 48 in Puerto Rico, and 3 in the Virgin Islands. All the localities inspected in Puerto Rico and the Virgin Islands, and a further 243 on the mainland, were found to be positive.

Of the initially positive localities, 23 on the mainland, 32 in Puerto Rico, and 3 in the Virgin Islands were treated. All these localities had been checked at least once after treatment, and according to the latest verification they were all still positive.

Venezuela. The results of the campaign were very limited owing to administrative and technical difficulties that are still being encountered. In 1966 the Government made a thorough review of the campaign and at the end of the year was studying the possibility of increasing the budget and adopting the other measures required to prevent reinfestation and achieve complete eradication within six years.

During the year, 356 localities were inspected as part of an initial survey and 344 were verified; a total of 157 were treated. Of the initial survey localities, 45 were found to contain *A. aegypti*, and 164 of the localities verified proved positive. In the course of this work 599,559 houses were inspected and 97,810 treated. In addition, 65,304 vessels and other vehicles were inspected, 61 of which were found to be harboring *A. aegypti*.

France. Eradication work in French Guiana had not been resumed as of December 1966, despite the fact that a 1964 survey had revealed that the reinfestation discovered in the capital in 1963 had spread all over Cayenne and the surrounding area, as well as to several localities in the interior.

The campaign in Guadeloupe, cut short in 1962, was not resumed.

In Martinique no specific *A. aegypti* eradication campaign has yet been begun. The Government has been conducting a general insect control program for some years, but as far as *A. aegypti* is concerned it has had only very limited success.

The French part of the island of St. Martin continued to be considered as negative, although no recent information was available.

Kingdom of the Netherlands. Aruba, which in 1965 was regarded as negative, became reinfested in 1966. The reinfestation detected on Bonaire in 1965 was not eliminated.

In Curaçao, which continued to be very widely infested, activities against *A. aegypti* were limited to control

measures in the port area of Willemstad and at the international airport. The results achieved were unsatisfactory.

The islands of Saba and St. Eustatius continued to be considered negative, although no recent data were available.

The Netherlands part of the island of St. Martin remained infested, and no work was done to control *A. aegypti*.

The campaign in Surinam continued to center on Paramaribo, where the results obtained up to April 1966 were very limited despite repeated treatments. This was due to the administrative difficulties encountered since the campaign began in 1963 and to the development of mosquito strains resistant to chlorinated insecticides.

Fenthion began to be used in May 1966, and the infestation index in Paramaribo, which was 21.5 per cent in April, had fallen to about 3 per cent by the end of the year; nevertheless, the new insecticide could have been put to even more effective use had it not been for administrative problems.

During the year work was also done at the international airport of Surinam, the border towns of Albina and Nickerie, and nine small localities in the outskirts of the capital, but with little result.

United Kingdom. The islands of Barbuda, Grenada, and Nevis continued to be considered negative, although up-to-date information was not available.

Anguilla remained infested, and no eradication work was undertaken.

On Antigua the campaign was not resumed, despite the extensive reinfestation found there in 1964.

In the Bahama Islands few campaign activities were carried out, owing to insufficient funds, and the results were not satisfactory.

Eradication work has not yet begun in the Cayman and Turks and Caicos Islands.

In Dominica, the campaign remained in suspense.

In the Grenadines, the islands of Carriacou, Little Martinique, Bequia, and Union continued to be without an eradication program.

The reinfestation found in Montserrat in 1964 was not eliminated.

In St. Kitts, which was reinfested in 1964, the eradication activities were not resumed.

In St. Lucia, despite the extensive infestation of the island, the campaign continued to be limited, because of lack of funds, to a part of Castries, capital of the territory, and to Vigie, the site of the international airport. Owing to administrative difficulties and to

mosquito resistance to chlorinated insecticides, the results were unsatisfactory.

St. Vincent was found to be reinfested in 1964, and up to December 1966 the reinfestation had not been eliminated.

The campaign in the Virgin Islands, suspended in 1963, was not resumed.

SMALLPOX

During the year 3,086 cases of smallpox were reported in the Americas. Of these, 21 occurred in Argentina, 3,039 in Brazil, 8 in Colombia, 5 in Paraguay, and 13 in Peru (Table 4). The remainder of the Hemisphere continued to be free of the disease.

Table 5 shows the number of smallpox vaccinations performed and the production of smallpox vaccine in the Americas in 1966.

Data on the status of the smallpox campaign in each country are presented later in this section.

In September 1966 the XVII Pan American Sanitary Conference considered the report on the "Status of Smallpox Eradication in the Americas and Estimated Requirements for Achieving It,"* which had been prepared as the result of a survey, conducted by PAHO staff and by eight short-term consultants, on the resources available to the countries and the international collaboration they require in order to conduct smallpox eradication, maintenance, and epidemiological surveillance programs. The

* *Official Document PAHO 77*, Annex 11. A preliminary report on the same subject was presented to the 54th Meeting of the Executive Committee (Document CE54/3).

TABLE 4. REPORTED CASES OF SMALLPOX IN THE AMERICAS, 1965 AND 1966

Country	1965	1966 *
Argentina.....	15 ^b	21
Brazil.....	3,152	3,039
Colombia.....	149 ^c	8
Paraguay.....	32	5
Peru.....	18	13
Uruguay.....	1 ^d	—
Total.....	3,367	3,086

— None.

* Based on official reports received at PASB through 5 June 1967.

^b Including 1 imported case.

^c Including 68 confirmed cases.

^d Imported case.

document described the status of the campaign, indicated the characteristics of each stage of an eradication program, and suggested criteria according to which PAHO/WHO should give priority assistance to the countries. It also included a budget indicating the kind and amount of assistance requested by the countries.

The Conference noted the report and recommended to the Governments that they initiate or accelerate their smallpox eradication programs; that they continue their maintenance and epidemiological surveillance programs; that they lend each other both technical and financial assistance; and that they place special emphasis on the preparation of high-grade smallpox vaccines. It also recommended that the Director of PASB continue to coordinate smallpox eradication programs and provide the technical advisory services needed to carry them out, in addition to material assistance—to the extent that budgetary resources would permit—as the progress of the programs required.

The Nineteenth World Health Assembly (May 1966) approved the program and budget for a worldwide smallpox eradication program; the Region of the Americas was allocated a sum for 1967 to provide technical and material assistance.

Two types of priority were established by PAHO/WHO for cooperating with the countries in the eradication program: the first is for countries where smallpox exists, and the second for countries which have already eliminated the disease but which, because they border on countries still infested, are in need of maintenance and epidemiological surveillance programs. All other countries were urged to keep a high proportion of their population protected against the disease and to comply with the pertinent provisions of the International Sanitary Regulations.

In 1966 a standard format for eradication, maintenance, and epidemiological surveillance programs was prepared as a basis for eventual agreements between the Organization and the countries. The post descriptions of epidemiologists and statisticians participating in the smallpox eradication campaign were also prepared.

Laboratory services. The consultation and reference services of the Serum Institute of Copenhagen, Denmark, continued to be available to countries for the quality and potency testing of vaccine produced in local laboratories. Unfortunately, this service was not fully utilized. In addition to this arrangement with the Institute, PAHO/WHO concluded an agreement with the University of Toronto, Canada, under which the University will advise countries on large-scale production of vaccine, particularly of the freeze-dried type, and on vaccine control tech-

I. PROTECTION OF HEALTH: DISEASES

TABLE 5. REPORTED SMALLPOX VACCINATIONS AND PRODUCTION OF SMALLPOX VACCINES IN 22 COUNTRIES OF THE AMERICAS, 1966

Country	Vaccinations	Vaccine produced <i>Doses</i>	
		Glycerinated	Lyophilized
Argentina.....	852,927	13,890,000	—
Bolivia.....	933,194	—	1,800,000
Brazil.....	2,073,232 ^a	180,380	9,386,200
Chile.....	1,039,683	4,000,000	36,500
Colombia.....	4,092,711 (1965)	—	2,535,000
Costa Rica.....	39,000 ^b	—	—
Cuba ^c	59,216	384,750	—
Dominican Republic.....	36,283	—	—
Ecuador.....	715,743 ^c	—	2,019,800
El Salvador.....	414,649	—	31,878
Guatemala.....	230,274	—	455,300
Haiti.....	262,854	—	—
Honduras.....	83,447 ^d	—	—
Jamaica.....	62,194	—	—
Mexico.....	2,598,890	8,038,360	—
Nicaragua.....	195,094	—	—
Panama.....	48,962	—	—
Paraguay.....	172,872	—	—
Peru.....	209,858	479,612	1,033,100
Trinidad and Tobago.....	13,860	—	—
Uruguay ^b	184,430	—	—
Venezuela.....	1,081,088	3,754,000	747,000
Total.....	15,400,470	30,727,102	18,044,778

— None.

^a To 24 November 1966.

^b To 30 November 1966.

^c To 30 September 1966.

^d To 30 October 1966.

niques; it will also carry out purity and potency tests on different lots of vaccines produced locally. University experts will pay an initial fact-finding visit to the countries that already have vaccine production facilities, to acquaint themselves with existing working conditions, and thereafter will make follow-up visits as required. The agreement is for a five-year period beginning on 1 January 1967.

Two courses on laboratory diagnosis of smallpox were given in October 1966 at the Adolfo Lutz Institute of São Paulo, Brazil, under the auspices of PAHO/WHO and in cooperation with the Communicable Disease Center of the U.S. Public Health Service in Atlanta, Georgia. The courses included classroom theory and intensive field and laboratory work, and were attended by 15 physicians from 10 Latin American countries and by PAHO staff.

Use of jet-injectors. It is known that foot-pump operated jet-injectors are very useful for administering freeze-dried smallpox vaccine. The Communicable Disease Center in Atlanta, Georgia, prepared two simply written, well-illustrated manuals on how to handle and repair this type of injector. One of the manuals, intended for use by the vaccinators, shows how the injector works, how it can be kept in good working order, and how to make minor repairs; the other is a guide for major repairs. With the authorization of the Communicable Disease Center, the Organization translated both manuals into Spanish and Portuguese for publication and distribution to the countries in 1967.* The Center also published these manuals in the French language.

Foot-pump operated jet-injectors were acquired for demonstration purposes, one being allocated to each Zone Office and to each country where smallpox still exists.

Some people are still doubtful regarding the use of manual jet injectors for the intradermal administration of smallpox vaccine, although others unreservedly recommend a particular manual injector for applying freeze-dried vaccine intradermally in doses of 0.1 cc. To arrive at a conclusion on the matter, the Organization bought a number of injectors of this type to test in the field.

The manufacturer of the dermo-jet type manual injectors was approached for permission to print an instruction pamphlet on the use of this instrument; the instructions have in the meantime been translated into Spanish and Portuguese with a view to sending them to certain programs for trial purposes.

Other activities. A study was made of possible ways in which smallpox vaccinations could be included in the schedule of regular immunizations performed by the national health agencies, so that they would become a routine activity. In this connection, a study was prepared proposing that a seminar be held on the administration of immunization programs, in order to explore methods of coordinating all the immunizations performed in each country into a single program and of setting the quantitative targets and specific time schedules for the future.

Status of the eradication program in the Americas. A total of 21 cases of smallpox were reported in Argentina in 1966. Following the epidemic outbreak in Corrientes Province in 1965, an emergency vaccination program was instituted and 4,007,797 persons were vaccinated during that year. In 1966, 852,927 persons were vaccinated.

* The first manual, *Ped-O-Jet Operation, Maintenance, and Minor Repair Guide*, was published in Spanish and Portuguese early in 1967 (*Scientific Publication PAHO 148*).

The National Microbiology Institute in Buenos Aires was provided with a new unit to produce enough freeze-dried vaccine to protect at least 80 per cent of the country's total population over a maximum period of four years. The first batch of vaccine was prepared toward the end of the year and it is expected that by early 1967 the Institute will be producing enough to make shipments to other countries in addition to meeting domestic requirements. In 1966 Argentina produced a total of 13,890,000 doses of glycerinated vaccine.

A draft agreement between PAHO and the Government of Argentina for a smallpox eradication program was prepared and submitted to the national health authorities for consideration.

Bolivia reported no smallpox cases in 1966. In suspect cases, laboratory tests were made in addition to the clinical and epidemiological studies, and in this connection the help of the National Institute of Microbiology and the National Institute of Health in Lima, Peru, was enlisted. During the year 933,194 persons were vaccinated. From the inception of the program (1963) to October 1966, a total of 2,176,679 persons were vaccinated; another 1,268,679 persons must be vaccinated before the target of 80 per cent of the total population is reached. The vaccine is applied by the multipressure method during house-to-house visits, and domestically produced freeze-dried vaccine is used. In the first 10 months of 1966 a total of 169,279 houses were visited, and during the same period the National Microbiology Institute produced 1,800,000 doses of freeze-dried vaccine.

The national army cooperated in the vaccination, and the National Malaria Eradication Service helped with the evaluation work.

Three short courses were organized to train 24 vaccinators and three squad chiefs.

A service was organized to maintain the level of immunity acquired by the population, but for financial reasons the rural areas failed to benefit from this program. The organization of a permanent epidemiological surveillance service is now pending.

In *Brazil* 3,039 cases of smallpox were reported. The Government furnished increasing amounts of dried vaccine free of charge to various countries of the Hemisphere. As of 24 November, 2,073,232 vaccinations had been performed in the country. As of the same date, vaccine production stood at 9,386,200 doses of dried vaccine and 180,380 doses of glycerinated vaccine. The dried vaccine production laboratories in Recife, those of the Oswaldo Cruz Institute in Rio de Janeiro, and those of Pôrto Alegre—which the Organization assisted with contributions of equipment and material—continued at

a high level of activity. The Butantan Institute also produced freeze-dried vaccine.

With funds provided by PAHO, 40 vehicles were purchased for transporting eradication program personnel, in addition to 80 foot-pump operated jet-injectors.

A short-term consultant cooperated in preparing the plan of operations for the eradication program in São Paulo State and in seven northeastern states.

A law was enacted defining general guidelines for conducting public health campaigns and establishing the national smallpox eradication campaign; the campaign superintendent was also appointed.

Chile reported no smallpox cases in 1966. The vaccination program was carried on as part of the routine activities of the National Health Service, and 1,039,683 persons were vaccinated. The Bacteriological Institute produced 4,000,000 doses of glycerinated vaccine and 36,500 doses of dried vaccine. The Government asked PAHO to sign an agreement providing for a maintenance and epidemiological surveillance program that would cover a five-year period beginning in 1967.

In *Colombia* eight cases of smallpox were reported in 1966. Freeze-dried vaccine production reached 2,535,000 doses; no glycerinated vaccine was prepared.

In *Cuba* 59,216 persons were vaccinated, and 384,750 doses of glycerinated vaccine were produced.

Ecuador reported no smallpox cases in 1966. Maintenance and epidemiological surveillance activities were continued. A total of 715,743 persons were vaccinated, and the Leopoldo Izquieta Pérez Institute produced 2,019,800 doses of dried vaccine.

In *Haiti* 262,854 persons were vaccinated. The target estimate for the year was 600,000 vaccinations. Since the inception of the program (1962) a total of 1,584,691 persons have been vaccinated, which represents about 45.3 per cent of the ultimate target of the program (3,500,000 vaccinations).

The smallpox vaccination program is carried out in conjunction with the yaws eradication program. Financial, administrative, and other difficulties have hampered the progress of the campaign.

The country uses dried vaccine supplied by the Governments of Venezuela and Brazil. The vaccine is administered by the multipressure technique and both the house-to-house and the mass vaccination method are employed.

There were five cases of smallpox in *Paraguay* in 1966.

Peru reported 13 cases of smallpox in 1966 and vaccinated 209,858 persons against the disease. The National Institute of Health in Lima produced 1,033,100 doses

of dried vaccine and 479,612 doses of glycerinated vaccine.

In *Uruguay* vaccinations were administered to 184,430 persons.

TUBERCULOSIS

Although data on the prevalence and incidence of tuberculosis are still incomplete, the disease clearly continues to be a major cause of death in several countries of the Hemisphere. Continuing efforts were made to establish uniform data recording and reporting systems that would contribute toward improved evaluation.

Tables 6 and 7 present the available figures on cases and deaths during the period 1961-1965.

The Organization continued to assist the Governments in preparing and developing verification areas suitable for serving as reference points for future programs. It also assisted in the training of medical, nursing, and auxiliary personnel and in reorienting control services.

As a result of technical meetings sponsored by PAHO, there was a renewal of interest in adopting suitable control programs. In the past two years, several countries have paid special attention to incorporating tuberculosis control activities into their general health services, to adopting simple methods of bacteriological diagnosis, and to stepping up the training of auxiliary personnel. Others, particularly in Central America, have administered BCG vaccinations, without prior tuberculin tests, simultaneously with other immunizations (DPT, smallpox, and poliomyelitis).

The Organization, through Zone advisers and short-term consultants, lent assistance to Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Nicaragua, Peru, and Venezuela.

In *Argentina* the National Tuberculosis Control Center (Recreo, Santa Fe) pressed ahead energetically with its activities in the fields of personnel training, BCG vaccination, epidemiological study of contacts, and investigation of the results of case treatment. The experience acquired in the ambulatory treatment of the control group in Santa Fe Province has been excellent (90 per cent of the patients are under this kind of treatment).

Six courses on tuberculosis control were arranged for medical and auxiliary personnel.

In accordance with the policy established by the provincial directors of the tuberculosis control campaign at a meeting of the Advisory Council held at the Center in Recreo, the provinces used the correct method in con-

ducting their programs. Nevertheless, the shortage of funds and the lack of any arrangement for entrusting control activities to the regular provincial health services prevented the activities from being extended any further.

Santa Fe Province managed, on a limited scale, to incorporate its tuberculosis activities into its general health services.

It is hoped that the program in the verification area, which is meeting most of its objectives, will be intensified to facilitate its extension to other areas of the country.

The Ministry of Public Health in *Bolivia*, with the help of advisory services from the Organization, established a national control program that includes the following activities: (a) organization of a verification area in the city of La Paz, using the Health Center as its headquarters, where the personnel participating in the program will be trained; (b) formation of two advisory teams, each composed of an epidemiologist, a statistician, a bacteriologist, and a public health nurse, whose work will gradually be extended to health units throughout the country; and (c) coordination of these activities with those of other agencies engaged in combating tuberculosis. In this way it is planned to incorporate tuberculosis control programs into the regular activities of local health services. The program started out on a limited scale, but it is hoped to expand it in 1967.

In *Brazil* a PAHO consultant cooperated with the national authorities in planning a verification area located in an urban-rural zone in Rio de Janeiro State. A study on atypical mycobacteria was also begun in cooperation with two laboratories in the United States of America and a third in Czechoslovakia.

In *Chile* an evaluation was made of the work performed by the Center at La Cisterna (a suburb of Santiago), and a PAHO consultant drafted recommendations for modifying the existing standards.

The Organization offered its collaboration in a Congress on Tuberculosis Microbiology held in Santiago in September, during which the criteria and bases for standardizing methods and equipment were studied.

In *Colombia* an Advisory Committee on Tuberculosis was set up at the Ministry of Public Health. It is composed of phthisiologists and health administrators from the departmental health agencies and receives advisory services from the Organization. The Committee will direct the tuberculosis control activities along new lines consistent with modern scientific ideas. To this end, a pilot control program will be carried out in 12 municipalities in the Departments of Cundinamarca and Tolima, where the population numbers 174,577. A tri-

partite agreement covering this program was concluded between the Government, UNICEF, and PAHO. The program, which will train those in charge of the tuberculosis campaign elsewhere in the country, will be conducted by personnel of the general health services, who will attend special training courses in Bogotá and Medellín. As its contribution to the program, the Organization supplied equipment for setting up two tuberculosis bacteriology laboratories.

In *Costa Rica* the Zone adviser examined the status of the tuberculosis campaign together with local authorities, and made recommendations for reorganizing the national program and for establishing a verification area.

In *Cuba* 2,979 new cases of tuberculosis were diagnosed during 1966. According to X-ray surveys, the prevalence in the country is 3.9 cases per 1,000 population. Plans were drawn up to administer BCG vaccinations to the entire rural population under 15 years of age. It is expected that this can be achieved rapidly thanks to the extensive coverage of the integrated health services.

In the *Dominican Republic* a pilot project in the municipality of San Cristóbal was completed. It covered a population of 129,500, and a sample equivalent to 10 per cent was taken. The results of this project pointed up the advantage of relying principally on BCG vaccinations. A three-year program was prepared for vaccinating newborn infants, children up to 5 years of age, and school-age children. In November a BCG immunization program without prior tuberculin testing was begun in the municipality of San Juan de la Maguana (population 108,000) in the under-15 age group; 17,500 persons were vaccinated. The program, which received advisory services from PAHO, is being extended to other areas. The initiation of intensive vaccination and case-detection programs in six provinces in the center of the country (with a population totaling 405,500) and the renewal of the agreement with UNICEF will make it possible to step up activities in the next few years.

In *Ecuador* both diagnosis and treatment are handled by the Ecuadorian League against Tuberculosis, which is to conduct a pilot program in Manabí Province, coordinating all activities with the national health service. To cooperate in this program, the Organization appointed a short-term consultant, who made an epidemiological survey of the area and submitted his recommendations.

A seminar was held in Guayaquil in April to examine methods, procedures, and targets for a national control program. It was attended by 19 physicians and 16 public health nurses from the Ecuadorian League and from the

National Health Service, as well as by PAHO consultants. It is expected that the program will begin in 1967.

El Salvador continued its efforts to incorporate tuberculosis control measures (BCG vaccinations without prior tuberculin testing, and case treatment and follow-up) into the general activities of the health services.

In *Honduras* the control program covers the Departments of Comayagua, La Paz, Choluteca, Cortés, Francisco Morazán, and Valle; the incorporation and coordination of its activities into the general health services continued. BCG vaccination and control and follow-up of cases and contacts are now incorporated in the activities of at least 20 health centers and subcenters.

PAHO staff advised the Division of Tuberculosis of the Ministry of Public Health and Social Welfare on reorganizing its data recording systems. A start was also made on evaluating the follow-up of cases, in accordance with the Organization's recommendations.

The First National Orientation Seminar on Tuberculosis Control Programs was held in October under the auspices of the Public Health Ministry and the Honduran League against Tuberculosis.

In *Mexico* the prevalence of tuberculosis is estimated at 1 per cent of the population; only 10 per cent of the presumptive cases are under treatment. The experience obtained in the Querétaro verification area, where activities were discontinued late in 1965, revealed considerable variations in prevalence from one region to another. The possibility of conducting pilot programs in other urban and rural areas was examined. Plans are now being prepared for mass oral BCG vaccination of 75 per cent of the population under age 20, over a period of four years. Control activities in the northern border states are gradually being intensified.

The number of new cases detected in the country in 1966 was 9,802.

In *Nicaragua* the health centers began to administer BCG vaccinations without prior tuberculin testing. A total of 114,627 persons were immunized with BCG simultaneously with vaccinations against smallpox (using jet-injectors) and poliomyelitis (oral).

The Zone adviser cooperated with the national authorities in evaluating the results of this program. Training was given to a group of the Mobile Tuberculosis Unit in connection with the assessment of the use of BCG without prior tuberculin testing.

Short courses and in-service training were organized, in which 16 physicians, 55 nurses, 18 laboratory technicians, 3 X-ray technicians, and 257 nursing auxiliaries participated.

In *Peru* the tuberculosis control targets set in the

TABLE 6. REPORTED CASES OF TUBERCULOSIS, WITH RATES PER 100,000 POPULATION IN THE AMERICAS, 1961-1965

Country or other political unit	Number					Rate				
	1961	1962	1963	1964	1965	1961	1962	1963	1964	1965
Argentina.....	19,098	18,000	24,060	21,101	16,380	90.9	84.3	110.9	95.8	73.3
Barbados.....	47	74	72	79	42	20.2	31.6	30.4	32.8	17.2
Bolivia.....	1,244	1,714	1,365 ^a	1,471 ^a	2,485	35.5	48.3	37.9	40.3	67.2
Brazil ^b	11,837	...	25,752 ^a	...	...	158.9	...	186.3	...	...
Canada ^c	5,966	6,284	5,705	4,541	4,803	32.7	33.8	30.1	23.6	24.5
Chile.....	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Colombia ^d	13,961	14,362	13,455 ^a	13,128 ^a	13,362 ^a	101.5	105.2	95.2	75.1	74.0
Costa Rica.....	492	602	567 ^a	501 [†]	570	40.2	47.3	42.2	36.1	39.8
Cuba.....	2,625	2,725	2,768	3,909	4,958	37.8	38.6	38.3	52.6	65.0
Dominican Republic.....	1,197	1,060	2,180	993	1,042	38.1	32.6	64.6	28.4	28.8
Ecuador.....	5,758	5,082	...	2,562 ^e	5,930 ^a	129.3	110.7	...	...	116.6
El Salvador ^f	5,388	4,581	6,035	4,544	4,823	365.8	302.6	221.8	160.9	218.7
Guatemala.....	3,362	3,495	3,647	3,714	6,121	85.6	86.3	87.3	86.3	137.9
Guyana.....	172	212	184	195	293	29.8	35.7	30.1	31.0	45.3
Haiti.....	3,332	3,875	4,557	3,802 [†]	3,514 ^a	81.9	93.5	107.8	89.6	79.9
Honduras ^g	1,985	2,157	951 ^a	2,601 ^a	2,321 ^a	99.1	226.6	95.1	208.7	203.4
Jamaica.....	495	335	310	362	301	30.1	20.2	18.3	20.8	16.8
Mexico.....	13,801	16,242	17,866	15,834 ^a	16,070	37.0	42.1	44.8	38.4	37.6
Nicaragua.....	707	391	344	1,241	1,998	48.7	26.1	22.3	77.7	120.7
Panama.....	1,104	1,423	1,330	1,549	1,354	100.9	125.9	114.0	128.5	108.7
Paraguay ^h	920	1,223	1,344	1,447	1,127	77.3	100.2	122.2	131.5	106.2
Peru ^h	21,503	24,005	21,460	24,041	23,853	440.9	465.8	445.7	445.4	390.5
Trinidad and Tobago.....	264	398	384	312	135	30.4	44.5	41.6	32.9	13.8
United States of America ^c	53,727	53,788	54,062	50,874	49,011	29.3	28.9	28.7	26.6	25.3
Uruguay.....	2,044	1,836	2,226	2,058	1,804	79.4	70.3	84.0	76.7	66.4
Venezuela ^h	8,487	8,138	7,529	7,121	7,192	168.1	154.2	136.2	123.8	120.0
Antigua.....	6	2	1	4	— [†]	10.7	3.4	1.7	6.7	—
Bahama Islands.....	122	156	296	145	143 [†]	103.4	126.8	227.7	108.2	105.1
Bermuda.....	22	10	17	16	14	48.9	21.7	36.2	33.3	29.2
British Honduras.....	54	58	95	74	80	57.4	59.8	95.0	71.8	75.5
Canal Zone.....	15	21	16	17 [†]	19	34.9	46.7	32.0	31.5	35.2
Cayman Islands.....	3	3	2	— [†]	...	33.3	33.3	22.2	—	...
Dominica.....	...	161	145	82 [†]	109 [†]	...	263.9	230.2	128.1	167.7
Falkland Islands.....	—	6	...	...	2	—	300.0	...	...	100.0
French Guiana.....	37	26	40	27	12 [†]	108.8	76.5	114.3	75.0	33.3
Grenada.....	37	29	21	...	...	41.1	31.9	22.8	...	...
Guadeloupe.....	106	208	...	187	75	37.7	72.0	...	60.7	23.7
Martinique.....	149	151	123	103 [†]	135	51.6	51.4	40.7	32.8	42.1
Montserrat.....	9	4	...	3	6	69.2	30.8	...	23.1	42.9
Netherlands Antilles.....	23	33	23 ^a	8	...	11.9	16.7	11.4	3.9	...
Puerto Rico.....	1,812 ^e	1,816 ^e	1,852 ^e	1,685 ^e	1,602	75.2	73.9	73.5	65.4	60.8
St. Kitts, Nevis, Anguilla.....	23	8	18	16 [†]	19	39.0	13.3	30.0	27.1	31.7
St. Lucia.....	59	53	74	44 [†]	88 [†]	67.0	57.6	78.7	47.8	93.6
St. Pierre and Miquelon.....	7	17	...	10 [†]	12	140.0	340.0	...	200.0	240.0
St. Vincent.....	...	...	17	...	...	...	...	20.2	...	...
Surinam ^g	204	143	148	162	145	72.1	49.3	50.2	54.9	48.3
Turks and Caicos Islands.....	2	—	1	— [†]	...	33.3	—	16.7	—	...
Virgin Islands (U.K.).....	2	2	...	...	...	25.0	25.0	...	...	...
Virgin Islands (U.S.A.).....	12	4	7 ^e	3 [†]	2 [†]	35.3	11.4	17.5	7.3	4.7

... Data not available.

— None.

* Disease not notifiable.

† Provisional.

^a Respiratory tuberculosis (001-008).

^b Incomplete data for State of Guanabara and capitals of several other states, with exceptions.

^c Newly reported active cases.

^d Reporting area until 1963 inclusive.

^e Hospital data.

^f Reporting area except in 1963 and 1964.

^g Reporting area beginning 1962.

^h Reporting area.

TABLE 7. DEATHS FROM TUBERCULOSIS, WITH RATES PER 100,000 POPULATION IN THE AMERICAS, 1961-1965

Country or other political unit	Number					Rate				
	1961	1962	1963	1964	1965	1961	1962	1963	1964	1965
Argentina ^a.....	...	2,844	...	...	1,517	...	13.3	...	...	12.6
Barbados.....	13	17	11	14	...	5.6	7.3	4.6	5.8	...
Bolivia.....	...	...	...	...	...	...	...	...	...	...
Brazil ^b	4,023	1,892	...	...	...	52.7	79.1	...	...	...
Canada.....	769	785	756	670	697	4.2	4.2	4.0	3.5	3.6
Chile.....	4,112	3,906	4,407	3,853	3,682	52.3	48.6	53.6	45.9	43.0
Colombia.....	4,066	4,260	4,111	3,840	3,930	25.6	25.9	24.3	22.0	21.8
Costa Rica.....	105	151	134	169	144	8.6	11.9	10.0	12.2	10.0
Cuba.....	1,204	1,402	1,406	1,133	...	17.4	19.8	19.4	15.2	...
Dominican Republic.....	457	354	271	266	317	14.5	10.9	8.0	7.6	8.8
Ecuador.....	1,201	1,279	1,213	1,153	1,160	27.0	27.9	25.6	23.6	22.8
El Salvador.....	372	373	417	...	457	14.7	14.2	15.3	...	15.6
Guatemala.....	1,237	1,261	1,291	1,255	...	31.5	31.1	30.9	29.2	...
Guyana.....	47	36	50	...	...	8.1	6.1	8.2	...	...
Haiti.....	...	...	...	...	...	...	...	...	...	...
Honduras.....	236	271	223	191	183	11.8	13.1	10.4	8.6	8.0
Jamaica.....	143	...	117	92	72	8.7	...	6.9	5.3	4.0
Mexico.....	9,403	9,799	9,648	9,535	9,723	25.2	25.4	24.2	23.1	22.8
Nicaragua.....	104	128	98	92	107	7.2	8.6	6.4	5.8	6.5
Panama.....	233	252	246	285	247	21.3	22.3	21.1	23.7	19.8
Paraguay ^c	275	275	232	...	289	30.6	29.7	24.3	...	27.2
Peru ^d	3,129	3,164	3,338	3,246	3,095	80.6	72.1	73.0	66.1	58.8
Trinidad and Tobago.....	86	48	74	70	...	9.9	5.4	8.0	7.4	...
United States of America.....	9,938	9,506	9,311	8,303	7,934	5.4	5.1	4.9	4.3	4.1
Uruguay.....	449	...	455	379	...	17.4	...	17.2	14.1	...
Venezuela.....	1,312	1,255	1,227	1,236	1,348	17.2	15.9	15.1	14.7	15.5
Antigua.....	9	7	2	4	...	16.1	12.1	3.4	6.7	...
Bahama Islands.....	...	9	...	8	9	...	7.3	...	6.0	6.6
Bermuda.....	1	1	...	2	2	2.2	2.2	...	4.2	4.2
British Honduras.....	8	10	12	12	11	8.5	10.3	12.0	11.6	10.4
Canal Zone.....	—	2	—	2	—	—	4.4	—	3.7	—
Cayman Islands.....	...	—	...	...	...	...	—	...	...	...
Dominica.....	...	19	28	...	...	...	31.1	44.4	...	...
Falkland Islands.....	—	—	...	...	—	—	—	...	...	—
French Guiana.....	11	...	...	9	13	32.4	...	...	25.0	36.1
Grenada.....	6	11	5	...	...	6.7	12.1	5.4	...	...
Guadeloupe.....	68	58	...	42	21	24.2	20.1	...	13.6	6.6
Martinique.....	75	56	...	...	...	26.0	19.0	...	...	...
Montserrat.....	2	2	...	3	...	15.4	15.4	...	23.1	...
Netherlands Antilles.....	1	...	...	...	...	0.5	...	...	...	...
Puerto Rico.....	633	582	517	498	456	26.3	23.7	20.5	19.3	17.3
St. Kitts, Nevis, Anguilla.....	7	11	8	...	10	11.9	18.3	13.3	...	16.7
St. Lucia.....	12	11	9	...	...	13.6	12.0	9.6	...	...
St. Pierre and Miquelon.....	—	3	3	1	—	—	60.0	60.0	20.0	—
St. Vincent.....	7	6	1	...	...	8.5	7.3	1.2	...	...
Surinam.....	23	6	21	18	18	8.1	2.0	6.6	5.6	5.4
Turks and Caicos Islands.....	—	—	1	...	...	—	—	16.7	...	...
Virgin Islands (U.K.).....	—	—	...	...	...	—	—	...	...	...
Virgin Islands (U.S.A.).....	1	2	1	1	—	2.9	5.7	2.5	2.4	—

... Data not available.

— None.

^a Area of registration in 1965.

^b State of Guanabara and capitals of other states, with exceptions.

^c Area of information.

^d Districts with medical certification.

TABLE 8. TUBERCULOSIS CONTROL PROGRAM ACTIVITIES, 1966 *

Country	Tubercu- lin tests	Per- centage of es- tab- lished target	BCG vaccina- tions	Per- centage of es- tab- lished target	Minia- ture X-rays	Per- centage of es- tab- lished target	Sputum examina- tions	Per- centage of es- tab- lished target	Cases de- tected	Per- centage of es- tab- lished target
Argentina (Recreo, Santa Fe) ^a	16,290	83	12,060	61.5	20,173	...	615	...	169	69
Bolivia (Altiplano) ^b	27,356	...	14,292	...	...	...	...	...	...	...
Chile (La Cisterna, Santiago) ^b	21,626	43.2	9,321	61.5	9,731	20.3	246	68.3	281	70
Colombia ^c.....	...	...	189,937	...	27,352	...	...	...	6,734	...
Costa Rica (Punta Arenas and Guanacaste) ^d	79,046	98	57,283	130	35,090	68	...	...	1,065	...
El Salvador (Usulután) ^e	47,197	...	35,676	...	11,897	...	1,789	...	411	...
Honduras ^b	165,371	70	144,621	102	104,636	111	...	...	1,804	...
Nicaragua (verification area) ^b	17,209	19	31,274	81	19,742	38	...	...	309	29
Peru (Tacna) ^b.....	...	...	...	...	10,246	...	2,701	...	154	...
Total.....	374,095		494,464		238,867		5,351		10,927	

... Data not available.

* Incomplete data.

^a January-September.^b January-October.^c January-June.^d From April 1965 to September 1966.^e January-August.

National Health Plan were redefined and the necessary duties were allocated among the various agencies responsible for the fight against this disease. In June a program to administer BCG immunizations to the 0 to 19-year age group was initiated, and it was hoped that during the year 21,000 persons in rural areas could be covered by prior tuberculin testing.

With a view to standardizing campaign techniques, a Seminar on Problems of Tuberculosis Control in Peru was held in Huaraz in July. It was attended by 50 phthisiologists in charge of the program and administrative medical officers from the health areas, as well as by three PAHO consultants. In accordance with the Seminar recommendations, a national tuberculosis control program was prepared with the advice of the Organization, and provision was made for five teams to supervise all tuberculosis control activities in the country. The teams will be trained at Tacna, where they will receive instruction in modern control techniques.

In *Venezuela* a four-week course was held in February on the diagnosis of mycobacteria by simple techniques and procedures that can be used in rural areas. It was attended by participants from Chile, Colombia, Ecuador, Mexico, Peru, and Venezuela. The Organization made available the services of a short-term consultant and provided fellowships.

Table 8 lists some of the activities carried out in programs in which PAHO collaborates.

LEPROSY

The Organization continued to assist the countries in improving their leprosy control programs from the point of view of statistics, epidemiology, control, evaluation, administration, and personnel training; permanent advisers specializing in leprosy and stationed in Zones IV and VI, headquarters staff, and short-term consultants took part in this work.

Data on the number of existing leprosy cases in the Americas continued to be incomplete. Of the 170,198 cases in the active register in 16 countries in 1966—of which 126,786 were under surveillance (Table 9)—only a part were classified according to sex, age, clinical form, and type of treatment. The same was true of the 8,821 new cases detected in 14 countries (Table 10).

Efforts to establish adequate statistical systems were continued, not only to study the epidemiology of the disease but also to evaluate the control programs and assess the effectiveness of the techniques being employed. In 1966 a re-evaluation was made of the data-recording system recommended by the Organization, which was put into operation in Argentina, Ecuador, and Venezuela after the necessary adaptations had been made. The experience gained during the two-year trial proved that the system is effective and offers advantages.

Special attention was also given to the study of the techniques used for leprosy control, for although the

methods are known, the way in which they are applied is not always consistent with the needs of a mass program, nor with the financial resources of the country concerned. Progress in this respect was made in several countries, where working procedures were suited to local needs.

For control programs it is also necessary to establish quantitative objectives—no simple task in the case of leprosy, which involves so many unknown aspects. It has been necessary to establish certain indices arbitrarily in order to set quantitative targets to be met within definite periods of time. The Organization has played a direct and active part in this task. Such objectives were established in the control programs in Ecuador and Venezuela, where studies were carried out on this subject, and the same will be done in Argentina.

Continuing efforts were made to improve methods for the evaluation of control programs, as a means of improving program performance and putting the resources invested to more effective use.

Since the Seminar on Leprosy held in 1963 in Cuernavaca, Mexico, which produced a series of recommendations on health administration as applied to leprosy control programs, the Organization has assisted the countries in preparing a set of suitable administrative methods. After years of work, these efforts are beginning to bear fruit, and the work being done in Argentina, Ecuador, and Venezuela provides a good example of what is being accomplished.

These three countries, all of which have quite different economies and administrative organizations, agreed to implement some or all of the recommendations of the Cuernavaca Seminar and later to submit the results of their experiment to the Third Pan American Seminar on Leprosy, scheduled to be held under Organization auspices in 1968. PAHO cooperated with these countries in the various aspects of program organization, operation, and evaluation.

In 1966, as a follow-up to the course held in Venezuela in 1965 on the prevention of deformities and the physical rehabilitation of leprosy patients, two short-term consultants made visits to various countries to discuss with the physicians who had attended the course any problems that existed, to offer assistance in solving such problems, and to utilize that experience in organizing future courses. These consultants later met with headquarters staff in Washington to study the same matter. It was agreed that the prevention of deformities and the treatment of certain minor disabilities should be regarded as part of patient care and come under the responsibility of the treating physician, whether he be a leprosy special-

ist or a general practitioner. It was considered that the rehabilitation of persons with established disabilities is the responsibility of general physical rehabilitation services, to which such patients should be referred. Accordingly, it will be necessary to organize a program of education directed to the medical profession, in order to ensure that leprosy patients are included in the general group of patients in need of physical rehabilitation. In line with this approach, plans for the new course on the prevention of deformities and the physical rehabilitation of leprosy patients were modified and the course was postponed until 1968. It will deal with every facet of leprosy and its control, and will examine the prevention and treatment of deformities as an integral part of the control activities.

Chapter III of this *Report* (Education and Training) presents information on other training activities in the field of leprosy.

Continuing emphasis was laid on the need for every leprosy program to be conducted simultaneously with three applied research programs: one in epidemiology, in order to learn more about the disease and improve control activities; one in sociology, to ascertain public response to the measures recommended; and the third in operational methods, with a view to simplifying work methods and reducing their cost. These concepts are now gaining acceptance and have already been written into the new text of the agreement concluded between the Organization and the Government of Argentina.

For purposes of research, a batch of lyophilized BCG vaccine was purchased in Japan and will be furnished to the Venezuelan control program; there are similar plans for Argentina.

A small number of hand-operated jet-injectors, calibrated to inject liquid doses of 0.1 cc intradermally, were acquired and will be tested in administering lepromin, tuberculin, and BCG.

Work on a manual for leprosy control programs was continued with the assistance of well-known scientists of the Hemisphere and PAHO staff.

Data are given below on the status of leprosy in various countries of the Americas and of control programs assisted by the Organization (Tables 9, 10, and 11, and Figure 4).

Argentina reported 310 new cases from January to June 1966 and had 9,173 cases in the active register at mid-year; of these, 5,482 were under surveillance. Their clinical forms were as follows: 2,875 lepromatous; 1,601 tuberculoid; 803 indeterminate; and 203 other clinical forms. Of those under treatment, 956 were in hospitals

TABLE 9. STATUS OF LEPROSY IN 16 COUNTRIES OF THE AMERICAS, 1966*

Country	Reference date	Cases in the active register						Treatment of cases under surveillance				Contacts							
		Surveillance		Sex		Age		Clinical form			Treatment of cases under surveillance		Contacts						
		Total	Under surveillance	Without surveillance	Male	Female	Under 15 years	15 years and over	Leprotomatous	Tuberculoïd	Indeterminate	Others	Hospitalized	Ambulatory	Not specified	Total	Under surveillance	Without surveillance	
Argentina ^b	30 June 1966	9,173	5,482	3,691	3,126 ^c	2,356 ^c	124 ^c	5,358 ^c	2,875 ^c	1,601 ^c	803 ^c	203 ^c	936	4,526	—	19,233	12,331	6,902	
Bolivia	20 May 1966	532	532	—	—	—	86 ^{a,d}	446 ^{c,d}	449 ^{c,d}	—	—	83 ^{c,e}	78	454	—	—	—	—	
Brazil	31 Dec. 1965	103,517	78,957	24,560	—	—	—	—	—	—	—	—	18,307	60,650	—	261,942 ^f	128,617	133,325	
Colombia ^b	30 June 1966	16,954	14,820	2,134	—	—	—	—	—	—	—	—	—	—	—	49,001 ^g	30,436	18,565	
Costa Rica	31 Dec. 1965	443	435	8	288	155	8	435	255	59	126	3	102	333	—	3,121	2,295	826	
Cuba	June 1966	4,304	4,094	210	2,577	1,727	95	4,209	2,375	983	596	350	555	3,539	—	13,746	7,682	6,064	
Ecuador	31 Dec. 1965	1,174	1,125	49	776	398	85	1,089	562	213	379	20	179	946	—	4,116	3,152	964	
Guatemala	Dec. 1965	180	180	—	131 ^e	49 ^e	—	—	111 ^e	49 ^e	18 ^e	—	—	—	180	695	191	504	
Honduras	31 Dec. 1965	226	195	31	151	75	22	204	40	100	86	—	9	153	33	1,907	847	1,060	
Jamaica	30 June 1965	1,011	1,011	—	308 ^{c,i}	246 ^{c,i}	75 ^{c,j}	477 ^{c,j}	243 ^{c,j}	179 ^{c,j}	130 ^{c,j}	—	97	351	563	—	—	—	
Mexico	30 June 1966	13,748	9,496	4,252	—	—	—	—	7,670 ^k	2,787	3,291	—	—	—	9,496	25,898	12,706	13,192	
Nicaragua	31 Dec. 1965	260	208	52	174	86	24	236	104	116	37	3	—	—	208	—	—	—	
Panama	31 Dec. 1965	178	155	23	115	63	20	158	110	47	6	15	101	54	—	698	655	43	
Paraguay*	31 Dec. 1965	4,085	—	—	—	—	—	—	2,006	1,157	853	69	—	—	—	—	—	—	
Peru	31 Dec. 1965	2,870	1,533	1,337	1,033 ^e	494 ^e	108 ^c	1,425 ^e	776 ^e	220 ^e	512 ^e	25 ^c	282	918	333	19,357	2,514	16,843	
Venezuela	30 June 1966	11,543	8,563	2,980	6,065 ^l	3,012 ^l	817 ^l	8,260 ^l	4,552 ^l	2,531 ^l	1,509 ^l	485 ^l	560	6,142	1,861	36,846	19,471	17,375	
Totals for countries with data on:																			
Cases under surveillance ¹		†	†	†	4,296	2,899	318	7,229	4,211	1,870	1,333	313	21,226	78,066	27,494	†	†	†	
Cases under and without surveillance ¹		164,390	125,063	39,327	4,081	2,504	254	6,331	13,122	5,462	5,374	460	†	†	†	436,560 ^f	220,897	215,663	
Grand total ^m		170,198	126,786	39,327	14,748	8,661	1,464	22,297	22,128	10,042	8,346	1,258	21,226	78,066	27,494	436,560 ^f	220,897	215,663	

... Data not available.

— None.

* Provisional data.

† Not applicable.

^a Based on official information received at PASB through 31 December 1966.^b Data refer to Provinces of Buenos Aires, Córdoba (except contacts), Entre Ríos, Formosa, Misiones, Salta, Santa Fe, and Tucumán. At 30 June 1966 the total number of leprosy cases in the country was 13,137.^c Only cases under surveillance.^d Age grouping is up to 15 years and 16 years and over.^e Non-leptomatous.^f No data available for Roraima Territory.^g Excluding 4,148 contacts in Amazonas State, not classified by type of control.^h Data provided by dermatological centers and clinics.ⁱ No data available for Bogotá.^j Partial information.^k Including dimorphous.^l Mutually excluding data.^m Sum of figures in each column. The horizontal sums do not necessarily coincide with the grand total.

TABLE 10. LEPROSY CASES DISCOVERED IN 14 COUNTRIES IN THE AMERICAS, BY SEX, AGE, AND CLINICAL FORM^a

Country	Period covered by data	Total	Sex		Age		Clinical form			
			Male	Female	Under 15 years	15 years and over	Lepromatous	Tuberculoïd	Indeterminate	Others
Argentina ^b	Jan.-June 1966	310	171	139	7	303	115	125	40	30
Brazil	Jan.-Dec. 1965	5,870	...	...	408	5,462	2,971	1,389	1,449	61
Colombia	Jan.-Dec. 1965	1,087	...	...	...	...	...	...	...	...
Costa Rica	Jul.-Dec. 1965	18	13	5	—	18	4	7	7	—
Cuba	Jan.-June 1966	174	84	90	9	165	70	59	37	8
Ecuador	Jan.-Dec. 1965	333	224	109	48	285	129	61	130	13
Honduras	Jan.-Dec. 1965	27	18	9	3	24	6	14	7	—
Jamaica	Jan.-June 1965	19	...	...	...	...	...	...	...	...
Mexico	Jan.-June 1966	422	241	181	40	382	202 ^c	103	117	—
Nicaragua	Jan.-Dec. 1965	18	11	7	6	12	5	6	7	—
Panama	Jul.-Dec. 1965	2	2	—	—	2	—	1	1	—
Paraguay*	Jan.-Dec. 1965	223	...	...	...	...	105	64	45	9
Peru	Jul.-Dec. 1965	37	29	8	4	33	15	7	15	—
Venezuela	Jan.-June 1966	281 ^d	153	75	26	202	85	71	46	26

... Data not available.

— None.

* Provisional data

^a Based on official reports received at PASB through 31 December 1966.

^b Data refer to Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta, Sante Fe, and Tucumán.

^c Including dimorphous.

^d Including 53 cases not classified by sex, age, or clinical form.

and 4,526 were ambulatory patients. Of the 19,233 contacts, 12,331 were under control.

At the end of the year the national authorities made a study of the work done in order to assess the objectives, costs, and administrative structure of the program, and recommendations were made on how to proceed in the future in order to attain the targets set.

In *Brazil* there were 103,517 cases of leprosy in the active register at the end of 1965, of which 78,957 were under surveillance. During the same year 5,870 new cases were detected. Additional data on the leprosy situation in Brazil appear in Tables 9 and 10.

In *Colombia*, from January to December 1965, 1,087 cases of leprosy were detected, and by mid-1966 there were 16,954 cases in the active register, with 14,320 under surveillance. The dermatology clinics are the health units responsible for leprosy control.

A WHO team carried out an investigation to study certain epidemiological characteristics of leprosy in an area containing a large concentration of patients and to apply new field techniques. There are plans to make a clinical examination of all the patients at Agua de Dios Sanatorium in Colombia. Since the inception of the program 7,564 persons have been examined, of whom 3,607 were found to be suffering from the disease. Between January and May 1966, 215 Mantoux tests and 101 Mitsuda tests were performed; 1,113 specimens were taken for bacteriological examination; sulfonuria tests

were made on 338 ambulatory patients and on 87 per cent of the registered patients; in addition, 1,328 persons were blood-typed. The case histories of the families covered by the study are also to be written up.

In *Ecuador*, despite the economic and administrative difficulties that arose in 1966, the control program encompassed the entire country and was consolidated into four regional services. Progress was made in the Provinces of Guayas and Los Ríos in applying the administrative methods recommended at the Cuernavaca Seminar.

The Organization cooperated in a study of the various stages of the control program, which includes the prevention of deformities and the physical and social rehabilitation of patients. The methods being used will make it possible to achieve the objectives of the program, in accordance with the country's available resources and facilities. Community cooperation is being enlisted successfully as an aid in periodic check-ups and the regular distribution of drugs, and in ensuring that patients take the doses prescribed.

According to available data (Table 9), at the end of 1965 Ecuador had 1,174 registered leprosy patients, 1,125 of whom were under surveillance; 562 were lepromatous, 213 tuberculoïd, 379 indeterminate, and 20 unclassified. Of the patients under surveillance, 179 were hospitalized and 946 were receiving ambulatory treat-

I. PROTECTION OF HEALTH: DISEASES

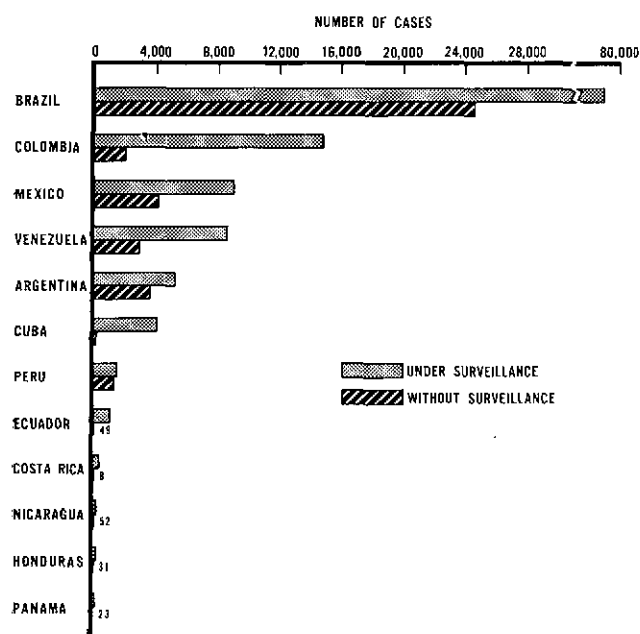


FIG. 4. LEPROSY CASES IN THE ACTIVE REGISTER, BY COUNTRY AND SURVEILLANCE, 1965.

ment. There were 4,116 registered contacts, of whom 3,152 were under control.

Up to September 1966, the number of persons screened for leprosy was 82,764 (73.5 per cent of the target set for that date). A total of 149 new cases were

detected (61 lepromatous, 35 tuberculoid, 48 indeterminate, and 5 dimorphous). Of these new cases, 45 per cent were detected through examination of contacts; 40 per cent through examination of persons reported as possible leprosy patients; 7 per cent through mass examination; 5 per cent through dermatology clinics; and 3 per cent by other means.

The Leprosy Service maintains effective coordination with the various health services, particularly the malaria and smallpox eradication services, whose inspectors notify it of possible leprosy cases.

Mexico had 13,748 cases in the active register in mid-1966, of which 9,496 were under control. Additional data are given in Tables 9, 10, and 11.

In Paraguay specialized PAHO staff cooperated with the health authorities in planning control programs for the health areas into which the country is divided. So far, the results have not come up to expectations. The prevalence of the disease is high, especially near the capital.

Leprosy is an important problem in Uruguay, although little is known of its magnitude and characteristics. Some years ago, Organization staff conducted a partial survey which showed that considerable numbers of patients were being treated by private practitioners in the capital. The Organization offered to assist the health authorities in making a comprehensive study of the

TABLE 11. DISABILITIES IN LEPROSY CASES DETECTED IN 11 COUNTRIES OF THE AMERICAS^a

Country	Period covered by data ^c	Dermatrophies			Miotrophies					Osteotrophies			Ocular impairment			
		Plantar ulcer	Other	Total	Simple	With paralysis				Moderate	Intense	Total	Blindness	Loss of vision	Total	
						Claw hand	Drop foot	Lagophthalmos	Other							
Argentina ^b	Jan.-June 1966	8	9	17	6	7	—	—	1	8	2	2	4	1	2	3
Colombia ^c	Jan.-Dec. 1965	85	272	357	—	60	6	7	20	93	21	14	35	3	6	9
Costa Rica	Jul.-Dec. 1965	2	—	2	—	2	—	1	1	4	—	—	—	—	—	—
Ecuador	Jan.-Dec. 1965	51	94	145	42	42	4	3	1	50	53	19	72	—	4	4
Honduras	Jan.-Dec. 1965	10	6	16	4	15	1	—	3	19	5	8	13	1	—	1
Jamaica	Jan.-June 1965	6	10	16	—	4	2	—	—	6	3	1	4	...	...	...
Mexico	Jan.-June 1966	12	20	32	116	15	1	1	—	17	10	12	22	—	—	—
Nicaragua	Jan.-Dec. 1965	10	—	10	4	10	4	5	—	19	8	3	11	1	—	1
Panama	Jul.-Dec. 1965	1	1	2	1	—	—	—	—	—	—	—	—	—	—	—
Peru	Jul.-Dec. 1965	1	8	9	22	—	1	—	1	2	2	2	4	—	—	—
Venezuela ^c	Jan.-June 1966	25	14	39	7	21	7	1	2	31	3	2	5	—	2	2

... Data not available.

— None.

^a Based on official reports received at PASB through 31 December 1966.

^b Data refer to the Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta, Santa Fe, and Tucumán.

^c Incomplete data.

problem, so that a national control program could be prepared, conducted, and evaluated.

Venezuela had 11,543 leprosy cases in the active register in mid-1966, of which 8,563 were under surveillance. Registered contacts totalled 36,846; 19,471 were under control.

The Organization assisted with the comprehensive study of all stages of a control program, including the prevention of deformities and the physical and social rehabilitation of patients. A guide containing full instructions for a control program was prepared. In Táchira State the incorporation of control activities into the general health services was tested with highly satisfactory results. The new administrative method was also tested in control programs in Caracas, Guarenas, La Guaira, Valencia, Puerto Cabello, and Victoria. On the strength of the experience gained, the authorities decided to extend the new method to the entire country, and appropriate steps are now being taken to put this into effect.

Assistance was given to the Government of Venezuela, through private laboratories in the United States of America, in the preparation of DDS in an aqueous solution with aluminum hydroxide for the treatment of leprosy patients. This new treatment will be evaluated carefully by the Venezuelan authorities.

Assistance was also given in obtaining consultant services for studies on genetics in connection with leprosy.

Studies were continued with a view to organizing a center in Venezuela to provide training in leprosy and its control for medical and paramedical personnel from the countries of Middle and South America.

VENEREAL DISEASES

The countries of the Americas continued to take a great interest in studying the problem of venereal diseases and organizing programs for their control.

The Government of Argentina requested PAHO's assistance in organizing two courses on laboratory methods for the diagnosis of venereal diseases. The courses were given at the Microbiology Institute in Buenos Aires in October 1966, with the cooperation of the Communicable Disease Center of the U.S. Public Health Service, and were attended by 15 physicians from Argentina and one from Uruguay.

Close touch was kept with the Chilean control program, which is being conducted as part of the regular activities of the National Health Service in Santiago and Valparaíso. In 1967 the area of activities will be extended to

include Concepción and Rancagua.

Although this program had been slowing down in previous years, it has now received a new impetus. A course was given in 1966 to train contact investigators, 15 of whom were recruited by the National Health Service. A two-week series of lectures and round-table discussions on venereal diseases and their control took place under the auspices of the Health Service, the Chilean Medical Association, and the Graduate School of the School of Medicine of the University of Chile, and was attended by a large number of physicians.

In 1966 the Organization published the Spanish edition of the manual *Serologic Tests for Syphilis, 1964* (Scientific Publication PAHO 144), prepared by the Venereal Disease Research Laboratory of the Communicable Disease Center (USA). The manual was distributed to health services throughout the Hemisphere and will be used as a reference text for both testing and control programs.

The volume *Seminario sobre Enfermedades Venéreas* (Scientific Publication PAHO 137) was also printed and distributed. It contains the papers presented at the Seminar held in Washington, D.C., in October 1965, as well as a series of laboratory tests for diagnosing venereal diseases that were discussed at the Seminar but have not been printed in other publications on the subject.

YAWS ERADICATION

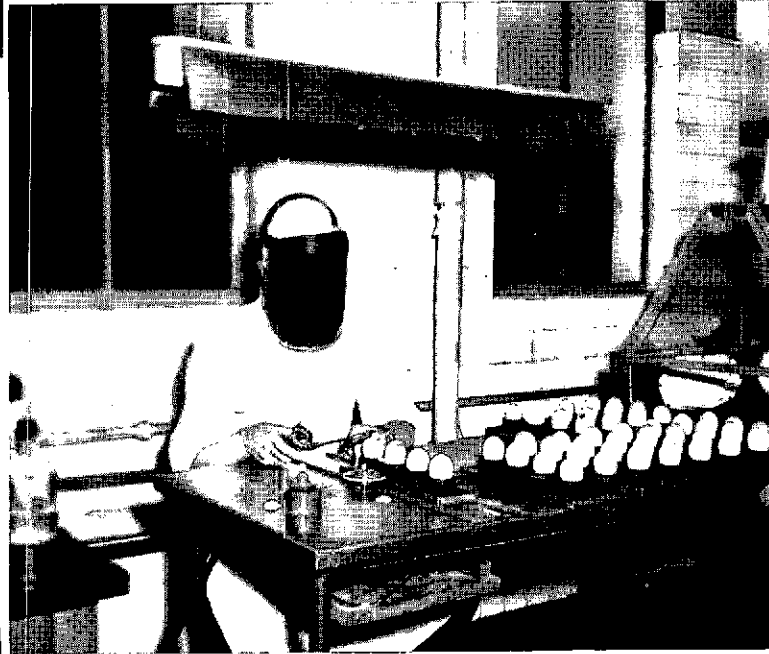
The yaws eradication program in Haiti was begun in 1950, and between July of that year and July 1957 a total of 3,611,737 persons were examined and 1,295,700 found to be suffering from all forms of the disease. Between July 1957 and December 1965 approximately 1,529,026 persons were examined, and 1,846 cases of infectious forms of yaws were reported; of these, 36 occurred in 1964 and 48 in 1965. In the past four years the program has encountered various kinds of difficulties, and was halted in July 1966.

The Organization has recommended that a detailed survey be made in Haiti to ascertain the present status of the disease, its distribution, and principal characteristics and to decide on a future course of action to definitively eliminate the disease. In 1966 the epidemiologist attached to Zone II carried out a preliminary study, and a specialized consultant later visited Haiti to collect the data needed in order to organize the proposed survey. Following his visit, the Organization prepared a report and in 1967 will be in a position to offer the facilities required to conduct the complete yaws survey recommended.



Malaria eradication: The sign posted on the outside of this woman's home designates her as a volunteer collaborator for the malaria eradication program in her town. She has been taught how to take a blood sample.

Preparation of 17D virus vaccine against yellow fever.



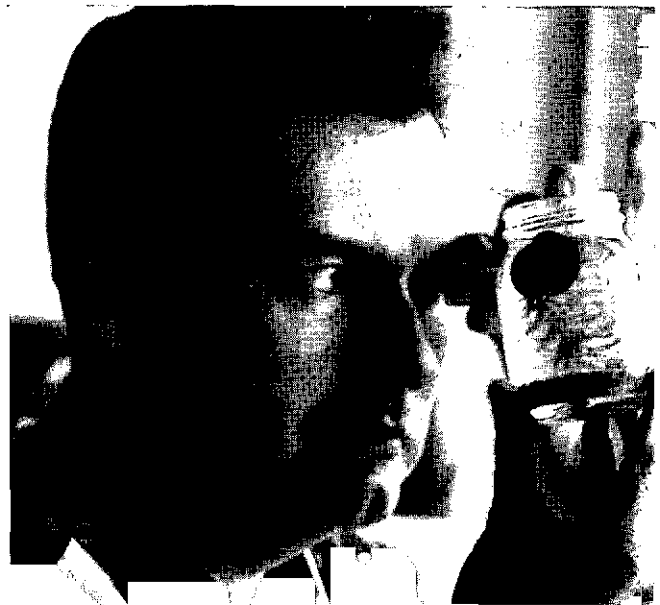
Tuberculosis control: In Honduras, a group of children are examined to check the results of tuberculin tests.

Control of rabies: A mother and her child are told of the perils of rabies and what they must do to avoid them.



Foot-and-mouth disease control: At the Pan American Foot-and-Mouth Disease Center, in Brazil, a bull is examined by a veterinarian for signs of the disease.

Schistosomiasis control: In Brazil, a laboratory worker inspects a suspect snail for the presence of the schistosomiasis parasite.



In the Dominican Republic a combined yaws eradication and venereal disease control program was started in 1956. Between 1958 and 1964 a total of 1,511 cases of infectious yaws were reported. Nevertheless, there is every indication that case-reporting has been incomplete, especially in 1963 and 1964 (37 and 33 cases, respectively). The reporting of yaws cases was suspended in 1965, and since then no information has been forthcoming on the progress of the program.

As in the case of Haiti, it has been recommended that a complete survey be made to ascertain the frequency and present distribution of yaws in the country, and to that end a specialized consultant visited the Dominican Republic in 1966. So far, it has not been possible to carry out the study.

ZOONOSES

In Latin America, where more than half the population lives in rural areas and is therefore more exposed to contact with domestic and wild animals, the study and control of the zoonoses are of great importance. The effects of these diseases on the economy and on public health are felt particularly keenly in the developing countries because they seriously impair livestock production and their transmission to man has serious repercussions on the health of the people. The growth of the population not only necessitates improved stock farming and greater control of animal diseases so as to furnish sufficient food for the growing number of mouths to feed, but also provides an incentive to exploit the virgin lands throughout the Hemisphere. But in penetrating into these vast areas man is brought into contact with infectious agents that in the past used to attack or coexist with the wild fauna natural to that environment.

In 1966 the Organization gave increased assistance to zoonoses control programs in the countries of the Americas and provided technical advisory services through its Headquarters and Zone Office staff and short-term consultants, and in particular through the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center.

Rabies remained an important problem in a number of countries. Data on its prevalence, however, continued to be incomplete. Table 12 contains the available statistics on cases reported in 1965 and 1966 in both man and animals.

In March 1966 a letter-agreement was signed with the Mexican Ministry of Public Health and Welfare, and an agreement was concluded with the United States Public

TABLE 12. REPORTED CASES OF RABIES IN MAN AND IN ANIMALS, 1965 AND 1966^a

Country or other political unit	Man		Animals	
	1965	1966 ^b	1965	1966 ^b
Argentina.....	16	13	1,271	778
Brazil				
State of Alagoas ^c.....	...	—	...	3
State of Pernambuco ^b	3	7	...	...
State of São Paulo.....	25	18	...	...
Canada.....	—	—	1,741 ^b	1,153
Chile.....	1	1	156	81
Colombia.....	103	37	829	...
Costa Rica.....	—	—	23	21
Cuba.....	—	1	73	64
Dominican Republic.....	11	3	82 ^b	90
Ecuador.....	15	12	310 ^b	192
El Salvador.....	7 ^d	7	43	71
Grenada.....	—	...	46	...
Guatemala.....	6	7	176	197
Haiti.....	3 ^b	— ^e	...	...
Honduras.....	1 ^d	2	76	26
Mexico.....	38	39	1,765	...
Nicaragua.....	1	—	60	67
Panama.....	—	...	1	6
Paraguay.....	2 ^d	—	259	—
Peru.....	11	17 ^e	1,424	...
Puerto Rico.....	—	—	18	20
United States of America....	2	1	4,681	3,984
Uruguay.....	1	...	257	...
Venezuela.....	15	16	568	551

... Data not available.

— None.

^a Based on official reports received at PASB through 22 May 1967.

^b Provisional data.

^c Data for the capital.

^d Reporting area.

^e Incomplete data.

Health Service, to conduct an intensive canine rabies control program along the U.S.-Mexican border.

In Argentina a consultant assisted in planning the national canine rabies control campaign scheduled to begin in 1967.

In Brazil the survey on rabies begun in late 1965 was completed. The report by the PAHO consultant was submitted to the Brazilian authorities and is being used to prepare plans for the national campaign, which is to be initiated soon.

Continued assistance was given to the Government of Grenada in carrying out and evaluating a program to control mongoose rabies, which is a serious problem on the island.

The services of a consultant were made available to

the Peruvian authorities to help with the national canine rabies control campaign.

In Uruguay a mass campaign of canine vaccination was completed; more than 362,000 dogs were vaccinated and the epizootic outbreak that had begun in 1964 was thus brought under control. The Organization furnished technical advice, vaccine, materials, and vehicles for this campaign.

At the request of the Government of Venezuela, a course on rabies diagnosis by the fluorescent antibody technique was organized at the Veterinary Research Center in Maracay to train the personnel who are to be placed in charge of rabies diagnostic services throughout the country.

In response to a request from the United Nations Development Program (UNDP), two Organization consultants participated in a joint FAO/WHO mission that visited Argentina, Brazil, Mexico, Trinidad and Tobago, the United States of America, and Venezuela to conduct

a survey of paralytic rabies in cattle. The mission also studied the possibility of establishing a research project on this subject, which the Government of Mexico wishes to carry out with UNDP financing. The report of the mission was submitted to the Fund for consideration.

The Organization furnished material and equipment for the rabies activities being carried out by specialized institutes in Brazil, Colombia, Guatemala, Mexico, Uruguay, and Venezuela.

The Pan American Zoonoses Center continued to analyze rabies vaccines for use in cattle and gave advisory services to Brazil, Colombia, Peru, and Venezuela in the field of personnel training and in the preparation and evaluation of rabies vaccine for human use.

Brucellosis is probably the most important zoonosis in Latin America because of its wide distribution, the heavy financial losses it causes, and its high incidence in man. Table 13 presents the data available on human cases reported in 1965 and 1966.

TABLE 13. REPORTED CASES OF ANTHRAX, BRUCELLOSIS, HYDATIDOSIS, LEPTOSPIROSIS, TRICHINOSIS, TRYPANOSOMIASIS, AND TULAREMIA, 1965 AND 1966^a

Country or other political unit	Anthrax		Brucellosis		Hydatidosis		Leptospirosis		Trichinosis		Trypanosomiasis		Tularemia	
	1965	1966	1965	1966	1965	1966	1965	1966	1965	1966	1965	1966	1965	1966
Argentina.....	146	36	636	1,286	266	256	...	...	60	7	1,984	2,776	...	...
Barbados.....	...	...	...	...	...	...	1	13	...	...	...	...	...	...
Brazil:														
State of Alagoas ^b.....	...	...	...	2	...	...	...	...	...	...	...	3	...	...
State of Pernambuco ^b.....	...	...	...	...	...	...	...	16	...	...	...	...	...	...
State of São Paulo.....	...	...	...	3	...	...	95	83	...	...	12 ^b	2 ^b	...	...
Canada.....	—	—	38	21	...	...	...	...	40	94	...	...	1	3
Canal Zone.....	—	...	—	—	...	...	1	2	—	—	—	—	—	—
Chile.....	168	137	8	...	888	...	...	...	51	...	...	...	...	...
Colombia.....	5	1	41	59	...	...	...	...	...	...	...	...	...	...
Cuba.....	...	...	19	6	...	...	—	—	—	—	—	—	—	—
El Salvador ^c	114	84	3	5	...	...	...	...	...	...	158	147	...	...
French Guiana.....	—	...	—	...	...	...	—	1	...	...	...	...	...	...
Guatemala.....	...	...	...	5	...	...	...	...	...	...	164	572	...	...
Haiti ^d	57	7	...	...	...	...	...	—	...	...	...	...	...	...
Honduras ^c	—	...	1	...	...	...	...	...	—	—	—	—	—	—
Jamaica.....	—	...	—	—	—	...	13	27	...	...	...	...	—	—
Martinique.....	...	...	—	...	...	...	1	1	...	...	...	...	...	...
Mexico ^d	34	...	1,093	1,056	...	...	...	...	...	...	...	...	—	—
Panama.....	17	10	—	...	—	...	—	—	—	—	23	...	—	—
Paraguay ^c	—	...	2	...	—	...	...	...	...	...	...	...	...	...
Peru ^c	34	...	1,102	1,380	150	113	...	...	...	...	2	...	...	...
Puerto Rico.....	—	—	—	—	...	...	1	3	—	—	...	...	—	—
United States of America.....	7	7	262	240	...	...	84	72	199	95	...	...	264	185
Uruguay.....	59	...	8	...	428	...	...	...	—	—	1	...	...	...
Venezuela ^c	4	...	5	...	...	...	2	...	—	—	596	...	—	...

... Data not available.

— None.

^a Based on official reports received at PASB through 22 May 1967.

^b Data for the capital.

^c Data for reporting area in 1965.

^d Incomplete data in 1966.

In Argentina, in accordance with the agreement for a national brucellosis control program concluded with the Government, the Pan American Zoonoses Center started to check the vaccines used and supplied the necessary antigens.

In Chile, with the collaboration of the U.S. Department of Agriculture, Rivanol antigen was supplied to the School of Livestock Sciences and Veterinary Medicine of the National University, which completed its survey of the prevalence of brucellosis in goats in the central valleys of the southern coastal region.

Advisory services were made available to Peru to help plan a program to control brucellosis among goats in the north of the country. Consideration was given to the possibility of using Elberg Rev.1 vaccine to immunize herds of goats in the infected areas.

A PAHO consultant gave advice on the national control programs of Argentina and Uruguay and also visited Chile, where he reviewed with the authorities the present status of goat brucellosis in Cajón del Maipo.

In the control programs of Central America and Panama the number of serological tests for diagnosing brucellosis was doubled in 1966. A total of 96,710 tests on cattle were made, revealing the following prevalence percentages: Costa Rica 4.9, El Salvador 5.1, Guatemala 2.8, Honduras 0.1, and Panama 1.2. The Organization cooperated with all these countries by providing advisory services and diagnostic antigen.

Panama began a coordinated brucellosis control program with the veterinary public health and animal health services, with the aim of eliminating the disease. More than 80,000 tests were made in 1966, covering 10 per cent of the total bovine population. A survey of 1,136 hogs showed 460 (40.5 per cent) to be positive, which confirms the suspicion that the disease is widespread in this species.

Bovine tuberculosis causes heavy financial losses and constitutes an important source of infection to other animal species, including man. It forms one of the main animal health problems in Argentina, Brazil, Chile, Paraguay, Peru, and Uruguay. The highest rates of infection are found in dairy cattle close to large cities. Generally speaking, the rates are low in Central America and the Antilles. During the year, 70,775 tuberculin tests on cattle were carried out in Central America and Panama, except for Nicaragua where the disease has not been registered. The results of the tests indicated the following percentages of apparent prevalence: Costa Rica 0.003, El Salvador 1.8, Guatemala 0.8, Honduras 2.7, and Panama 0.01.

Except for the programs in Costa Rica, the United

States of America, and Venezuela, no appreciable progress in the control of bovine tuberculosis was noted in the countries of the Hemisphere. Financial considerations and lack of personnel and equipment hamper the elimination of reactor animals, which therefore remain a constant source of infection.

Leptospirosis is becoming increasingly serious in the countries of the Hemisphere. According to surveys carried out in Argentina, Brazil, Guatemala, Mexico, Panama, and the United States of America, the disease is widespread among domestic animals and there are also a large number of cases in man.

In Chile, at the request of the Ministry of Agriculture and with the cooperation of the Communicable Disease Center (USA), a serologic survey on leptospirosis was begun on 3,000 cattle in the southern part of the country to determine the magnitude of the problem and the type of infection that is affecting the livestock.

With the assistance of the Pan American Zoonoses Center, antigens, sera, and diagnostic strains of leptospirosis were supplied to Brazil, Colombia, Guatemala, and Uruguay.

Table 13 shows the available figures, incomplete though they are, on human cases of leptospirosis and of other zoonoses reported in 1965 and 1966.

Pan American Zoonoses Center

Significant advances were made during the tenth anniversary year of the Pan American Zoonoses Center. The project for strengthening the Center, presented by the Argentine Government to the Special Fund of the United Nations Development Program, was approved and the plan of operations was signed in September 1966. The project provides for the expansion of the technical facilities for research and training and for field studies and demonstrations in order to furnish better advisory services to the countries of the Americas.

The Government of Argentina, in addition to providing the new headquarters building in Ramos Mejía, city of Buenos Aires, also made available an adjacent parcel of land and agreed to build quarters for laboratory animals and supplementary facilities. The installations located in Azul will be maintained for field investigation studies, for laboratory support to the pilot program of brucellosis control in Buenos Aires Province, and for the production of laboratory animals and standard reference biologicals.

Research. Some of the more important research activities carried out during the year are summarized below.

Brucellosis. Work was continued on the typing of

Brucella strains isolated from human patients and animals in various Latin American countries. Strains from Brazil, Chile, Mexico, and Peru were examined. In the Azul area in Argentina a survey was conducted to investigate the prevalence of *Brucella* infection in dairy herds, using the ring test. Of 60 pooled herd samples, 34 (56.7 per cent) gave positive reactions.

A study was made of 1,725 sheep sera from Tierra del Fuego, Argentina, using the plate and tube serum-agglutination and Rivanol tests. The results showed a few sera "suspicious" to the serum-agglutination tests and all negative on the Rivanol test.

Hydatidosis. Since 1964, 13 controlled experiments have been carried out at the Center with compound 62-415 (Bunamidine) to treat *Echinococcus granulosus* in artificially infected dogs. The results of these trials have revealed this drug to be a highly effective tenicide. In 1966 a laboratory-controlled trial was conducted to study the efficacy and toxicity of the drug at lower doses—50 mg/kg administered twice with a six-week interval between doses. In addition, a large field trial, conducted on 400 farms in the Azul area with the cooperation of the Ministry of Public Health of Buenos Aires Province, was designed to treat 1,000 dogs, an additional 1,000 being held as controls. The dose, ranging from 44 to 88 mg/kg, was administered twice with a six-week interval between doses. The results on 330 samples from treated dogs and 334 from control dogs showed 8.4 per cent infection in the treated group and 18.6 per cent in the controls.

Two investigations were conducted on the development of protoscolices of *E. granulosus* in laboratory animals and in tissue culture.

Leptospirosis. The studies to determine the rate of infection in Argentine cattle with serotypes *Leptospira pomona* and *L. sejroe* were continued, using the microscopic agglutination test.

Rabies. The studies of antirabies antibody levels produced in vaccinated cattle were continued. Cattle immunized with the attenuated live-virus tissue culture vaccine and with the suckling mouse brain (SMB) U.V. inactivated vaccine were periodically studied over the period of one year. Animals inoculated with the first vaccine demonstrated higher antibody titers than those vaccinated with the SMB vaccine. Trials were also begun with two other types of vaccine: the SMB vaccine reconstituted in aluminum hydroxide gel, and a second (HEP modified) tissue culture vaccine.

Seventeen different strains of viruses from several South American countries were studied to measure their virulence and immunogenicity and select the best one for

vaccine and serum production, as well as for challenge purposes.

To help improve diagnostic procedures, the Center prepared antirabies immune globulins conjugated with fluorescein isothiocyanate; the reagent was provided to official laboratories in Brazil and in Uruguay.

Zoonoses in wild animals. The investigations to determine the natural occurrence of zoonoses in different species of wildlife were continued. A study was made on vizcachas (*Lagostomus maximus*) captured in the Azul area of Argentina; 550 specimens were examined serologically and bacteriologically for brucellosis, with negative results. Kidney and urine samples from 335 vizcachas were cultured for *Leptospira*, with negative results. *Leptospira* microscopic agglutination tests were also made on 270 sera from these animals; titers of 1:50 were obtained for *L. canicola*, *L. pyrogenes*, and *L. hebdomadis* in 39 sera, and a titer of 1:200 for *L. canicola* in one serum. Blood specimens of 56 vizcachas, 1 ferret, and 2 armadillos were cultured for trypanosomes.

Food microbiology. A bacteriological study was made on raw and heat-treated food obtained from shops and markets in Azul, Argentina. The sampling and laboratory techniques employed were demonstrated by a short-term technical adviser engaged to set up a food microbiology laboratory at the Center.

Technical services. Visits were made to Panama and Colombia to obtain information on the zoonoses situation and also to review the status of rabies vaccine production in Colombia. A specialist travelled to Peru to collaborate in the planning of a control program against goat brucellosis, and a rabies consultant spent six months in Uruguay and two months in Argentina, assisting authorities in the organization of control measures. Staff of the Center participated in several meetings on zoonosis control held in Argentina, Guatemala, Panama, Uruguay, and Venezuela, and attended all the meetings of the Regional Technical Committee on Animal Health (southern South America), to which technical advice was provided on zoonoses problems.

For the purpose of increasing services to Central American countries, a visit to that area was made in November 1966 and the design of specific zoonoses control projects was discussed with local authorities.

In 1966 the Center examined 36,230 samples sent from different countries; of these, 35,158 specimens were for diagnosis, 158 were biological products for study and control, and 914 were whole animals for diagnosis and taxonomic classification.

Education and training. Long-term training in special studies on the zoonoses was provided to three pro-

professionals from Argentina, Brazil, and Paraguay. Short-term instruction was given to one professional from Peru on the control of brucellosis vaccines and antigens and on antirabies vaccine production; and to two specialists from Uruguay, on hydatidosis control and on the fluorescent antibody technique for rabies diagnosis. Personnel from Argentine laboratories received orientation on laboratory methods for the production and control of brucellosis strain 19 vaccine. A Brazilian physician received training on brucellosis and hydatidosis, and a specialist from Venezuela was trained in the laboratory control of rabies vaccines.

In July a one-week course on rabies diagnosis was conducted in Montevideo, Uruguay, in collaboration with the Institute of Hygiene of the School of Medicine and the Ministry of Public Health; 23 professionals and technicians attended.

Information and publications. The scientific material published during the year included a manual compiling the papers presented at the course on laboratory and epidemiological aspects of rabies held in May 1965, in Buenos Aires, Argentina; technical notes on bacteriological control of canned and frozen meats, and on the prevention of rabies in man; and seven scientific papers. The quarterly information bulletin *Zoonosis* was published regularly. Several bibliographies on the zoonoses were prepared at the request of individuals and institutions in Argentina, Colombia, Great Britain, and Guatemala.

Pan American Foot-and-Mouth Disease Center

As may be seen from the progress of the programs in countries affected by foot-and-mouth disease, the campaign against the disease in the southern part of the Hemisphere continued to consolidate its gains, which is a reflection of the considerable amount of work that the Center is performing.

Several events of the past year will have a direct bearing on how future campaigns are organized. Foremost among those events was the meeting of a working party in August (Washington, D.C.) to consider the problem of foot-and-mouth disease in the Americas. It was convened by the Director of PASB and was attended by representatives of the OAS, IDB, the World Bank, the Inter-American Committee on the Alliance for Progress, AID and other Federal agencies of the United States of America, as well as by representatives of the Pan American Foot-and-Mouth Disease Center. The working party approved a "Guide for the preparation of projects for the

control of foot-and-mouth disease" and a document on "Criteria for the analysis and evaluation of loan requests for programs for the control of foot-and-mouth disease," both prepared by the Center.

At the II Latin American Meeting of the International Office of Epizootic Diseases in September (Caracas, Venezuela), it was recommended that the countries adopt both the Guide and the Criteria.

The Inter-American Development Bank prepared a document, with the cooperation of PAHO, in which it set forth its policy on foot-and-mouth disease; the document will serve as the basis for an agreement between the two agencies.

In pursuance of Resolution 34-M/66 of the Fourth Annual Meeting of the Inter-American Economic and Social Council at the Ministerial Level (Buenos Aires, Argentina, March-April 1966), the Organization, in cooperation with the OAS, prepared a document entitled "Report on the study for the permanent and dependable financing of the Pan American Foot-and-Mouth Disease Center and on the present status of the Foot-and-Mouth Disease problem in the Americas." The document was submitted to and revised by the Ninth Meeting of CIAP, held in Washington, D.C., in October (Document CIAP/48).

Diagnostic and reference services. The Center typed 480 epithelium and serum specimens sent in by 16 countries (Table 14) by means of complement-fixation and serum-neutralization or serum-protection tests. The presence of Indiana subtype 2 in 43 blood sera of horses and mules was confirmed in Brazil for the first time.

Countries with intensive campaigns under way continued to be on the lookout for the appearance of new subtypes. The Center provided specific subtype sera for diagnostic purposes and also identified subtypes.

O Vallée field specimens were investigated in Venezuela, where it was verified that in serologic tests they differ greatly from the O Lara vaccine-production virus. In Colombia specimens from field outbreaks of the O Vallée variety were typed and shown to be very similar serologically to the specimens received from Venezuela.

Research program. The principal aim of the program continued to be the improvement and development of new inactivated vaccines and modified live virus vaccines. Owing to the appearance of a subtype, type O strains from the Center began to be used in vaccine production in place of the standard O Lara Venezuela strains.

Vaccine studies. The Center is studying type O and type C foot-and-mouth disease virus isolated in South America, by low-temperature (26-28°C) attenuation tech-

TABLE 14. DIAGNOSIS AND STUDY OF 480 VIRUS SAMPLES EXAMINED AT THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER, 1966

Country	No. of samples examined	Material		Type identification					Negative
		Lingual epithelium	Sera	Foot-and-mouth disease			Vesicular stomatitis		
				O	A	C	New Jersey	Indiana	
Argentina.....	56	56	—	15	29	7	—	—	5
Bolivia.....	7	7	—	—	7	—	—	—	—
Brazil.....	310	207	103	105	66	63	—	39 ^a	37
Colombia.....	4	2	2	—	4	—	—	—	—
Costa Rica.....	6	6	—	—	—	—	3	1	2
Ecuador.....	2	2	—	2	—	—	—	—	—
El Salvador.....	12	12	—	—	—	—	9	—	3
France.....	3	1	2	3	—	—	—	—	—
Germany.....	2	2	—	2	—	—	—	—	—
Guatemala.....	2	2	—	—	—	—	1	1	—
Honduras.....	1	1	—	—	—	—	1	—	—
Nicaragua.....	4	4	—	—	—	—	—	—	4
Panama.....	14	4	10	—	—	—	8	4	2
Peru.....	6	6	—	6	—	—	—	—	—
Uruguay.....	47	47	—	35	9	—	—	—	3
Venezuela.....	4	4	—	4	—	—	—	—	—
Total.....	480	363	117	172	115	70	22	45	56

— None.

^a Indiana subtype (2).

niques, and the results achieved during the year were very promising.

In Minas Gerais State, Brazil, a study was begun of the experimental field application of a bivalent modified live virus vaccine, using an avianized A Cruzeiro strain vaccine and a lapinized C Rezende strain vaccine.

Considering the importance of immunizing young cattle, the Center began a study to observe the effect on calves of a trivalent modified live virus vaccine with avianized and lapinized O, A, and C strains, respectively.

Cell and tissue cultures. The production of foot-and-mouth disease virus from which to make inactivated vaccines or modified live virus vaccines still poses difficulties of a financial, technical, and scientific nature, but much has been achieved through the use of tissue culture techniques. The susceptibility was confirmed of various diploid strains and heteroploid lines developed at the Center from the kidneys, lungs, pancreas, and thyroids of hogs, hares, and calf embryos. The adaptation and serial passage of these new cell lines of O Campos, C Rezende, and A Cruzeiro viruses were begun with promising results.

Virus carriers. The study of the persistence of modified live virus in bovines is being prompted by strong interest in using this kind of vaccine to control foot-and-

mouth disease in South American countries, but this calls for accurate knowledge of how long the virus persists, what hazards it may hold for exports of meat from vaccinated cattle, and epidemiology of the disease. In studies on tissues and organs it was possible to isolate lapinized viruses from specimens of blood clots, bone marrow, skin, pancreas, kidney, and tonsils. The results were positive up to 62 days after vaccination. Virus recovery was carried out in unweaned mice.

Meat technology. The purpose of this study is to find a means of destroying or inactivating foot-and-mouth disease virus in contaminated meats. To determine the conditions conducive to the technical inactivation of natural and modified strains of the virus types present in South America, 46 experiments were conducted, including studies with type A and C strains, stability of complement fixation, comparative titers in monolayer cultures of various cell types, and slide counts.

Technical and field services. Technical advice of various kinds was given to all countries of Central and South America, as well as to Cuba, the Dominican Republic, France, the Philippines, Trinidad and Tobago, the United States of America, and several international agencies upon request.

Center staff visited all the countries of Latin America

at least once, to assess the status of foot-and-mouth disease and the activities being conducted to prevent or control it.

The situation and activities of each country in South America affected by the disease are summarized below.

The campaign in Argentina completed its fifth year and covered all affected areas. An outbreak caused by O and A type viruses in the northwestern provinces revealed important aspects that prompted special studies. The Government's control laboratory stepped up its activities and was able to check half the batches representing nearly 170 million doses of OAC vaccine produced by the private laboratories.

In Bolivia, the Animal Biology Laboratory operated by the Ministry of Agriculture, with advisory assistance from the Center's regional consultant, made the first local diagnoses of foot-and-mouth disease viruses in specimens from La Paz, Cochabamba, and Beni. It also produced its first batches of vaccine, using the Frenkel culture method. The pilot vaccination project in Cochabamba, conducted under an agreement between the Government and PAHO, entered its third year. The Center supplied 30,000 doses of inactivated OAC vaccine for use in the pilot area, which includes about 3,000 small farms with close to 13,000 head of cattle.

In Brazil the campaign in the State of Rio Grande do Sul covered 23,000 ranches with a bovine population of some 3 million. The technical team of the National Foot-and-Mouth Disease Campaign concluded the studies and projects required to extend the program to other states and to submit a loan application to IDB.

In Chile, the incidence of the disease was very low throughout the year. The National Foot-and-Mouth Disease Plan, which was prepared with the cooperation of the Center, was approved by the Government and submitted to IDB with a request for financial assistance. The Ministry of Agriculture began a vaccination campaign in Llanquihue Province and it is hoped that the data obtained will prove useful when it comes to organizing the national campaign. The Government renewed the agreement with PAHO for research work on modified live virus vaccines.

Colombia focused its activities on systematic vaccinations along the Caribbean coast. Throughout most of the country the status of the disease was benign, and the greatest incidence was recorded in the central and southern departments. The agreement between the Government and PAHO for research on modified live virus vaccines was extended for a further two years. The III Meeting of the Executive Committee on the Agreement between Colombia, Ecuador, and the Organization for

the foot-and-mouth disease campaign in the border area between the two countries was held in Ipiales in November.

Despite serious budgetary difficulties, Ecuador carried out effective work for the prevention of the disease in the Sierra region, particularly along the border with Colombia, and for the reduction of its incidence along the seaboard and in the south near the Peruvian border. The agreement with PAHO for research on modified live virus vaccines was renewed.

Paraguay completed its study of the project for a nationwide foot-and-mouth disease campaign, which the Center helped to prepare, and the request for financial assistance was submitted to IDB.

In Peru the incidence of the disease was low. Official control of vaccine in bovine cattle was begun, making Peru the fourth country—after Argentina, Ecuador, and Venezuela—to introduce this essential requirement, which is one of the main activities the Center is promoting. An agreement was reached with the Center to start research on modified live virus vaccines.

Uruguay was hit by a wave of foot-and-mouth disease caused by a type O virus. Some specimens examined at the Center revealed significant serologic differences between the virus present in the field and those used by the laboratories producing vaccine. As a result, the necessary changes were made in order to solve the problem. As part of the preparation for a national foot-and-mouth disease campaign, the organization of a vaccine control system was studied.

Venezuela also suffered a wave of type O foot-and-mouth disease, which mainly affected the hog farms. A virus different from the vaccine virus was suspected, because of the unusually high incidence among some herds of vaccinated cattle; these suspicions were confirmed by serologic studies at the Center. To solve the problem, O Campos strain modified in chicken embryos was sent to Venezuela, since it is serologically similar to the O strain of the Venezuelan outbreak.

In Central America and Panama, which are free of the disease, numerous meetings were held with local authorities and with the International Regional Organization for Health in Agriculture and Livestock (OIRSA) to coordinate activities aimed at preventing the introduction of the disease. To this end, a draft agreement between the Center, OIRSA, and Panama was prepared for a cooperative program.

Distribution of biological materials. The Center furnished a variety of biological materials for vaccine research, production, and control to 31 laboratories and public and private institutions in the United States of

America and all countries of South America (except Chile).

Training. Twenty-two veterinarians on PAHO fellowships and five other professional health workers, drawn from all South American countries, received instruction at the Center's laboratories or in its XXII Training Course held at Maracay, Venezuela, which dealt with the latest concepts in the field of modified live virus vaccines.

Dissemination of information. The Center distributed 4,500 copies of informational material (reprints, issues of the booklet *Cuadernos*, reports, translations) and published seven scientific papers, in addition to the volume entitled *Plan de acción a seguir en caso de un brote de fiebre aftosa* (Plan of action in the event of an outbreak of foot-and-mouth disease) (Scientific Publication PAHO 67-1), which was sent to all countries and territories in the Hemisphere that are free of the disease.

The library periodically sent technical information and bulletins on the epizootiological status of vesicular diseases in the Americas to 544 interested professional health workers and institutions.

PLAGUE

For many years, plague has been an important health problem for some countries of the Americas. At present plague exists in the western part of the United States of America and in Bolivia, Brazil, Ecuador, Peru, and Venezuela. The total number of cases registered continued to increase, following the trend that began in 1960. During 1966, 897 cases of plague were reported to the Bureau, representing an increase of 6 per cent over 1965 (Table 15 and Figure 5).

TABLE 15. REPORTED CASES OF PLAGUE IN THE AMERICAS, 1962-1966

Country	1962	1963	1964	1965	1966 ^a
Bolivia.....	—	53	49	149	3
Brazil.....	36	39	285	119	48
Ecuador.....	326	258	194	369	171
Peru.....	164	72	125	200	669
United States of America.....	—	1	—	8	6 ^b
Venezuela.....	1	—	—	—	—
Total.....	527	423	653	845	897

— None.
^a Based on official reports received by PASB through 20 May 1967.
^b Including 1 imported case.

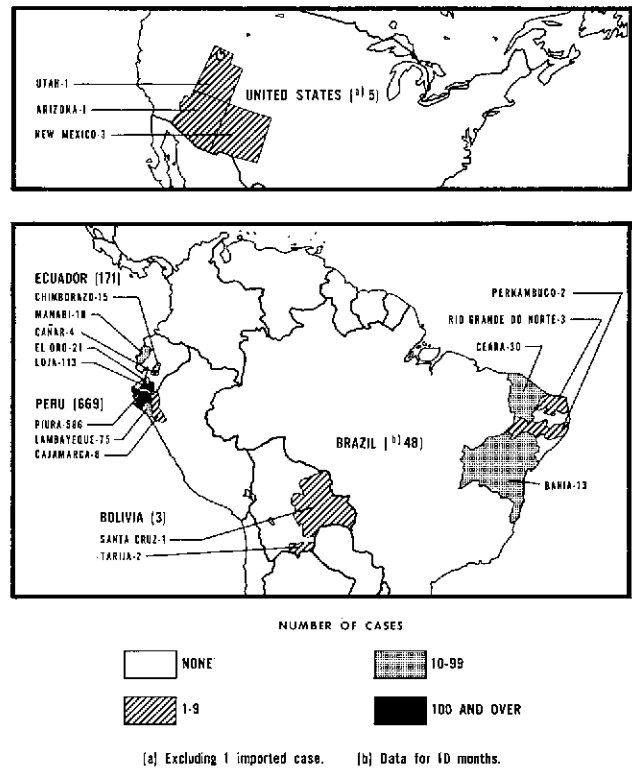


FIG. 5. REPORTED CASES OF PLAGUE IN THE AMERICAS, BY MAJOR POLITICAL DIVISIONS OF EACH COUNTRY, 1966.

In Bolivia the three cases reported occurred in the Departments of Santa Cruz and Tarija. This compares with the total of 149 cases reported in 1965.

Forty-eight cases were reported in Brazil, from the States of Bahia, Ceará, Rio Grande do Norte, and Pernambuco, as compared with 119 registered in 1965. The Organization signed an agreement with the Government for a research project on plague in the northeast sector of the country. This project, which was started in the second half of the year, includes ecological studies, research on the natural infection in wild rodents and fleas and on the sensitivity of various rodent species, study of isolated strains of plague bacilli, and research on the intradomestic flea fauna and on some methods of control. Investigations of this kind, combined with studies on the comparative susceptibility of the various animals to infection with *Pasteurella pestis*, may reveal the existence of species of prime importance for the maintenance of plague, and possibly even that of limited foci where the infection persists and from which it is apt to break out whenever an increase of the rodent and Lagomorpha populations provides adequate fuel for a spread of the disease. Though admittedly requiring great initial ef-

forts, such investigations will, in the long run, greatly facilitate a watch over the trend of sylvatic plague. To this project, the Organization is providing the services of an epidemiologist-bacteriologist, short-term consultants, fellowships, and a limited amount of supplies and equipment.

The plague outbreak in Ecuador, which had been spreading since 1960, became considerably less severe, with the number of cases reported in 1966 falling to 171, which was 54 per cent below the 1965 figure. The problem is centered mainly on Loja Province in the south, which from the epidemiological viewpoint forms a single area with the focus in northern Peru. Cases also occurred in the rural areas of El Oro, Chimborazo, and Cañar Provinces, and several more in Manabí Province, particularly in the towns of Manta and Portoviejo. The Manabí focus is especially important because of the danger that the disease may spread to neighboring areas, notably the port of Guayaquil.

The Organization continued to assist the Government's control program by furnishing a short-term consultant who made a complete review of the problem and proposed a systematic control program adapted to the country's resources and capabilities. A certain amount of supplies and equipment were also provided.

The Plague Control Service continued its routine activities, concentrating its efforts on the port of Guayaquil. Program activities, especially field operations, were hampered somewhat by financial difficulties.

Between January and October the following control measures were carried out: 517,165 rats trapped; 312,832 houses inspected and treated; 45,626 square meters of fencing inspected; 1,519,420 caves treated with cyanogas; 696,169 home visits made, and 55,268 courtyards inspected and sanitized.

In Peru, in contrast to the situation in Ecuador, the incidence of plague was more than three times as high as in the previous year: 669 cases were reported, as compared with 200 in 1965. Most occurred in the Department of Piura, which borders on Loja Province in Ecuador. The outbreak late in 1965 and in 1966 in Piura Department and in El Oro and Loja Provinces in Ecuador was the largest ever recorded in that area, where plague is enzootic in wild rodents. This endemic focus extends from approximately 3°30' S to the 6th parallel south (276 km) and is about 128 km in width. The other cases reported in Peru occurred in Cajamarca and Lambayeque Departments.

A short-term PAHO consultant visited Peru and completed the study begun two years earlier; he also made recommendations on plague control. As a result of his

visit, a special control service was created under the Special Public Health Service, and a program chief, resident in the city of Piura, was appointed, with responsibility for the execution and coordination of all activities. In accordance with this plan, inspection personnel were appointed and the survey of houses in the affected areas was begun. A training course was started in October for the personnel who will be working on rodent and insect extermination in the field. With a view to coordinating the plague control programs being conducted by Peru and Ecuador, the Organization sponsored a visit to Ecuador by those responsible for the Peruvian program, and as a result a joint plan of action for both sides of the border was drawn up.

The Organization concluded an agreement with the Peruvian Government for a plague control program through which, in addition to consultant services, supplies and equipment will be furnished for field work and the installation of laboratories.

To give greater assistance to countries beset by the plague problem, particularly Ecuador and Peru, the Organization appointed a Regional Plague Consultant who will be stationed in Lima.

The six cases of plague reported in the United States of America occurred in the States of Arizona, New Mexico, and Utah. One was imported from Vietnam by a soldier returning home.

In Venezuela the research work carried out in 1964-1965 with special emphasis on the ecology of rodents and their fleas, continued with the cooperation of a short-term consultant from the Organization. Improved knowledge of the epidemiological aspects of the disease will be useful for reviewing the campaign now under way. Venezuela has had no case of plague since 1962.

POLIOMYELITIS

The Organization continued to cooperate with the Governments in their mass programs of oral vaccination against poliomyelitis by furnishing advisory services for the programs and campaigns, facilitating the acquisition of vaccine through its purchasing services or obtaining it free of charge, and by helping to solve emergency problems.

Serological studies in various countries of the Hemisphere have shown that there is great activity of poliomyelitis viruses, even in areas where the disease was clinically unknown. At the same time, however, improved environmental sanitation and rising living standards in various regions have reduced the spread of the enteric

viruses. Population groups formerly subject to poliomyelitis infection in the first months of life are no longer exposed, which means that increasingly larger groups remain susceptible.

To prevent outbreaks of the disease, the Governments have conducted vaccination programs among the population groups most seriously exposed. When these campaigns have been conducted systematically, the incidence of the disease has diminished, but in those countries where this has not been possible there have been outbreaks which have required emergency measures to bring them under control.

From 1960 to 1963 a vaccination program was conducted throughout Argentina, resulting in considerably reduced incidence, but the program was not followed up in succeeding years, and late in 1965 there was a new outbreak of poliomyelitis, which continued in 1966. The number of paralytic cases increased to 401 (260 in 1965), of which 92 per cent were reported in children under 3 years of age and 95 per cent in unvaccinated children. To combat the outbreak the program was intensified, and by October 867,328 children out of a total of 1,215,444 in the age group 2 months to 5 years of age, were vaccinated (71.4 per cent of the goal).

In Brazil there were four outbreaks of poliomyelitis during the year: one in Guanabara State, caused primarily by type 1 virus; one in Fortaleza, Ceará State, with more than 200 cases, also type 1; one in Rio Grande do Norte State, considered from a clinical viewpoint as poliomyelitis, although no virus was isolated; and one in the State of São Paulo, with 572 cases.

The Oswaldo Cruz Institute, the Evandro Chagas Institute (an agency of the Special Public Health Service Foundation), and PAHO agreed to conduct a study to evaluate the effectiveness of poliomyelitis vaccine in tropical areas. A short-term consultant visited Brazil and discussed a work plan for this study with the public health authorities.

In Colombia there was an outbreak (type 1 virus) in the area of Cali, and from October to December 55 paralytic cases and five deaths were reported, the majority in unvaccinated children less than 6 years of age.

In Cuba the disease has disappeared as a result of mass vaccination campaigns conducted each year since 1962. Nevertheless, the Government has continued to vaccinate the younger population groups. In March and April 1966 the fifth campaign, with oral vaccine, was carried out among children up to 4 years of age. In the first stage, which lasted five days, a total of 1,167,745 children (120.8 per cent of the goal) were vaccinated.

In Mexico a low rate of incidence was expected in

1966, but the actual number of cases, 836, was the highest since 1960. The northern and central states had more cases than in 1965, and Jalisco and the Federal District had less.

In a mass program of oral vaccination, Peru immunized a total of 3,046,682 persons: 808,290 in the northern zone, 1,613,560 in the central zone, and 624,832 in the southern part of the country.

In the United States of America, the vaccination program has continued with great intensity. The annual incidence of the disease has dropped substantially since 1952, but 93 paralytic cases were reported in 1966 (52 per cent more than in 1965). The highest incidence was in Texas, with 71 cases, mostly in preschool children; type 1 virus was responsible for the outbreak.

In Venezuela 297 cases were reported during the year. Of the 150 cases confirmed by clinical or by laboratory methods, 114 were of the paralytic form, with 10 deaths. The following types of virus were identified: type 1 (98 cases), type 2(6), type 3 (28), undetermined (12), mixed (6). The distribution by age groups was as follows: less than 1 year (50 cases), 1 year (56), 2 years (22), 3 years (7), 4 years (3), 5-9 years (4), 10 years or more (6), unspecified age (2).

In Central America and Panama the immunization campaigns were continued through the local health services. In Costa Rica 32,264 children were vaccinated; in El Salvador 469,501; in Guatemala 91,690; in Honduras 54,931; in Nicaragua 207,085; and in Panama 8,229. In Nicaragua the vaccination campaign was conducted simultaneously against smallpox, tuberculosis, and poliomyelitis, with the cooperation of the Brother's Brother Foundation and the First Baptist Church in Cleveland, Ohio, U.S.A.

INFLUENZA

As in previous years, the Organization assisted the countries of the Hemisphere by providing information on influenza outbreaks throughout the world, reagents for early diagnosis of the disease, technical assistance for control activities and, in certain instances, vaccines.

In Córdoba Province, Argentina, an increased incidence of mild influenza-like illness was observed in August-September. The age group most affected was that of young adults. Strains of influenza virus B were isolated.

During February, outbreaks of mild influenza, which affected principally schoolchildren, were reported in Canada in the lower mainland area of British Columbia

Province and in localities of the Provinces of Alberta, Manitoba, Quebec, and New Brunswick. In British Columbia cases in adults with more severe symptoms were reported later in the outbreak. Sera of patients in the Vancouver area gave positive results for infection with both influenza virus types A and B, and virus A₂ was isolated.

An epidemic of influenza began in Guatemala at the end of March, and reached such proportions by the middle of April that special mobile teams of physicians were formed to meet the requests for medical care. However, school and work absenteeism did not exceed 10 per cent. In El Salvador, the disease appeared two weeks later than in Guatemala, and the incidence was lower.

At the end of April an influenza epidemic occurred in Honduras; 20,115 cases were reported in April-June.

An outbreak of respiratory illness in Panama and in the Canal Zone began early in July and continued through the month of August. Laboratory confirmation of infection with influenza A₂ virus was obtained in two cases.

An outbreak of influenza occurred in Trinidad during June and July. Serological evidence of infection with type A was obtained and several strains of A₂ virus were isolated during the outbreak. Two of these strains were studied at the International Influenza Center for the Americas, Atlanta, Georgia, U.S.A., where they were found to be very similar to strains of A₂ influenza prevalent in the United States of America during 1964-1966.

In the United States, between December 1965 and May 1966, the presence of influenza (type A and/or B) was identified clinically and epidemiologically in 49 of the 50 states; laboratory confirmation was made in all but one state. Strains of A₂ virus were isolated in 17 states and serologically confirmed in 12 others, while strains of B virus were isolated in 25 and serologically confirmed in 16 others; 21 states confirmed the presence of both types A and B. Those areas affected by both viruses usually experienced two waves of increased influenza activity, although occasionally both types occurred concurrently.

Pneumonic influenza mortality reported by 122 cities in the U.S.A. was slightly above the epidemic threshold from mid-February to mid-May. The excess mortality was contributed almost entirely by California, where the rates reached levels not exceeded since 1960, when type A₂ influenza also occurred. In areas where type B virus was most widespread, the younger age groups were principally involved.

Influenza viruses isolated during the 1965-1966 season, of both types A₂ and B, appear to form a relatively homogenous group when compared in reciprocal hemagglutination inhibition tests. The currently prevalent

strains showed an antigenic relationship to the viruses that are used for the preparation of influenza virus vaccines.

From May to July outbreaks of influenza were reported in 12 states of Venezuela.

ARBOVIRUS INFECTIONS

Encephalitis. In the United States of America, 495 human cases of encephalitis caused by arbovirus were reported from 20 states up to 29 October 1966; 414 were St. Louis, 41 Western Equine, 1 Eastern Equine, and 39 California encephalitis.

During the summer, large urban epidemics of St. Louis encephalitis occurred in Dallas and in Corpus Christi, Texas (180 and 102 cases, respectively). Although cases appeared in all age groups, the attack rates rose with increasing age. Entomologic studies showed that *Culex quinquefasciatus* was the only species present in sufficient quantity to be implicated as the responsible vector.

Three other urban areas in the United States reported human St. Louis encephalitis infections: New Orleans, Louisiana (20 cases), Fort Worth, Texas (17 cases), and St. Louis, Missouri (6 cases). Thus 325 St. Louis encephalitis cases may be considered "urban," while 89 were reported from rural areas. The total of 414 cases in the first 10 months of 1966 was the third largest number recorded in any year since reporting was instituted in 1955. In 1964 there were 470 cases, and in 1965, 563.

Only minimal activity of Western Equine encephalitis was reported in the summer of 1966 in contrast to 1965, when the largest documented human outbreak occurred, with 172 cases. Up to the end of October, 13 western states recorded 41 cases in humans. However, virus activity appeared to be widespread geographically and the incidence of the disease in the endemic areas of Texas and the central valley of California was comparable to that recorded in previous years.

In Manitoba, Canada, a program for the collection of gophers, specimens of chicken blood, and mosquitoes was carried out during the summer months. Preliminary reports on these specimens from the provincial laboratories were all negative. However, unconfirmed reports of clinical cases in horses were received. In addition, there were a number of suspect clinical cases of Western Equine encephalitis in humans.

In Venezuela an outbreak of Venezuelan Equine encephalitis began early in October in Guasipati, Bolívar State, and spread to the towns of El Callao, El Dorado, and Tumeremo in the same region, where 469 cases were

reported up to 17 December. The epidemic was preceded by an epizootic among equines in which more than 150 horses died. Venezuelan Equine encephalitis virus was recovered from both human and equine cases.

Dengue. In Venezuela, outbreaks of dengue were reported during January in the towns of Coro, in Falcón State, Duaca and El Tocuyo, in Lara State, Valera, in Trujillo State, and Tinaquillo, in Cojedes State. An investigation carried out in Valera showed an *Aedes aegypti* index of 47 per cent. In April outbreaks began in Carabobo and Mérida States.

Cases of the disease continued to be reported in October, November, and December in the States of Carabobo, Falcón, and Trujillo. The total for Venezuela in 1966 was 5,266 cases, of which 2,582 were reported in the first quarter, 1,961 in the second, 391 in the third, and 332 in the fourth quarter.

Three cases of dengue were reported in Jamaica in the early part of the year, and one case in Puerto Rico in the week ended 15 October. No outbreaks were reported in the other islands of the Caribbean.

Hemorrhagic fever. Up to 31 December 1966, 667 cases of Argentinian hemorrhagic fever were reported. This figure exceeds the median of the annual totals for 1961-1965 (482 cases). The disease occurs principally in the northwestern part of Buenos Aires Province. However, 69 cases were reported in Córdoba Province up to 31 December 1966, as compared with the total of 12 cases in 1963, 33 in 1964, and 36 in 1965. In 1966, as in previous years, a few cases were reported in the Provinces of La Pampa (4) and Santa Fe (2).

PARASITIC DISEASES

In recognition of the fact that parasitic diseases are among the most important public health problems of the Americas, a Regional Adviser on Parasitic Diseases was placed on the staff of the Organization to plan and coordinate the program in this field.

The principal parasitic diseases in the Hemisphere are schistosomiasis, Chagas' disease, leishmaniasis, onchocerciasis, and intestinal helminthiasis. The gravity of the problems to which they give rise can be illustrated by the fact that more than six million persons in the Americas are infected with *Schistosoma mansoni* and probably more than seven million with *Trypanosoma cruzi*.

Schistosomiasis and Chagas' disease, being the two most important of these diseases, have been selected for first attention in the Organization's program. Leish-

maniasis and onchocerciasis are next in order of priority.

Schistosomiasis. A schistosomiasis control program is currently under way in Venezuela and new control programs are about to be started in Brazil and on the island of St. Lucia. It is expected that these programs will produce information that will be of mutual benefit to each of them and that will enable other countries to plan control activities within the next three to five years. Consequently, it is planned to support studies in endemic areas that do not yet have programs in order to prepare them for undertaking control work based on the experience gained in these areas.

During 1966 the Regional Adviser made two trips to Brazil to consult with the authorities on the national control program, and an engineer and an epidemiologist were sent as short-term consultants to advise on specific problems. The Government completed the plans for pilot control projects in four endemic foci, to be conducted under the direction of local specialists, in order to test control methods and compare their efficacy and cost, and at the same time to train staff for the expanding control activities.

The Organization continued to collaborate in the work of the International Center of Snail Identification for the Study of Schistosomiasis, located in the National Malacology Research Center of the National Institute of Rural Endemias, in Belo Horizonte, Brazil. The manuscript for the handbook *A Guide for Identification of the Intermediate Snail Hosts of Schistosomiasis in the Americas* was prepared by a group of consultants and is scheduled for publication by PAHO in 1967. It is intended to serve as an aid to laboratory and field staff engaged in control activities.

Chagas' disease. During the year the Organization started a new program of support to studies on Chagas' disease, aimed at developing methods for its control. One of the major needs is an effective and standardized technique for serologic detection of the infection. In November 1966 a meeting of 10 specialists from six countries was convened in San Juan, Puerto Rico, to discuss diagnostic methods and propose measures for improving serologic diagnosis. The group quickly approved and recommended the adoption of a standard procedure for the complement fixation test. In addition, five of the specialists agreed to conduct carefully controlled cooperative tests of at least five antigens, in order to develop a sensitive and specific antigen that can be adopted as a standard.

When a standard antigen and a standard test procedure have been developed, it will be possible to advocate their use for all routine diagnosis, including blood-bank screen-

ing, and consequently to promote the collection of reliable information on the distribution and prevalence of the disease throughout the Hemisphere. The standard test will also aid laboratory and clinical research.

A PAHO consultant also visited Uruguay to consult with the national authorities on the problem of Chagas' disease in that country.

Other parasitic diseases. With the collaboration of the WHO Headquarters Office, a consultant was assigned to review the present status of onchocerciasis in all the endemic areas of the Americas. He observed that the epidemiological picture is different in each country but that the general pattern is similar to that in Africa. The

principal vectors in Mexico and Guatemala appear to be efficient but the one in Venezuela is not. A significant observation made by the consultant was that control of the principal vectors in Mexico and Guatemala appears to be feasible, despite past reports to the contrary.

Assistance was given in an experiment conducted by the Institute of Tropical Medicine, University of Recife, Brazil, in which the efficacy of cooking salt containing diethylcarbamazine for control of filariasis was tested. At the level of 0.4 per cent in the salt, the drug was not degraded by cooking, was accepted without complaint, and reduced microfilaria counts by 70 to 90 per cent in two weeks.

B. ENVIRONMENTAL SANITATION

The year 1966—midpoint in the Decade of the Alliance for Progress—was a time of stock-taking, of re-examining the activities, and the use of manpower resources in environmental sanitation. The change in environmental problems resulting from rapid urbanization and industrialization continued to reflect itself in a changing pattern of requirements for technical assistance. Most countries now have well-organized and competent staffs, programs, and institutions to manage the basic problems of environmental sanitation and, therefore, the Organization can increasingly provide assistance to the Governments on a broader scale, in more difficult areas, focusing attention on the emerging problems that will become major issues over the next decade: urban environmental planning; comprehensive water pollution and air pollution control systems; industrial hygiene and safety; mass production-assembly line community water supply programs; partnership arrangements in multiple-purpose water resource projects; metropolitan solid wastes collection and disposal; organization, administration, management, and financing of major environmental public works. The trend is away from the slide rule and toward the computer and, for the Organization, away from technical assistance on individual projects toward mass technical assistance through advanced technical training programs, seminars and symposia, and through larger-scale multiple project approaches.

In the community water supply program a very significant milestone was reached in 1966. From the launching of the Alliance for Progress to the end of that year, \$1.1 billion had been allocated for water supply and sewerage services benefiting 52 million people. This rep-

resents a tremendous accomplishment on the part of the countries and stands as a lasting tribute to the Governments and their institutions. The international funding organizations that have collaborated closely also can take pride in the accomplishment.

Urban areas fared better than rural areas in the overall water supply program. In general, the former are on target in their efforts to meet the goal of providing service to 70 per cent of the urban population by 1971. The latter are substantially behind schedule and a greater effort will be required in the next five years to meet the established goal of serving 50 per cent of the rural population. More extensive use of financing methods such as the revolving fund—with flexibility sufficient to accommodate varying economic circumstances—may be one means of accelerating the program.

Other major needs are beginning to compete for priority with water supply. To meet these needs new and highly specialized types of collaboration with Governments will be required, in addition to the broad programming assistance provided by the Organization's Zone and country staff. It is not possible, within the realities of limited resources, to provide the required experts in these fields other than on a continent-wide basis. Accordingly, the Organization has proposed that this type of expert technical assistance be provided on a Regional basis from a Pan American Sanitary Engineering Center. An initial group consisting of one expert in each of the fields—industrial hygiene, air pollution, housing, and urban planning—has been assembled in Lima, Peru. Recruitment is under way for an expert in water supply and another in water pollution. With this modest begin-

ning it is hoped that the Organization can develop a center that will serve as a source of basic data and technical information, expert consultant services, and stimulation through the conduct of seminars, technical conferences, and similar activities.

Producing the manpower to render improved environmental services continued to receive high priority. The Organization's short-term technical training program has expanded the number of courses offered by nearly 50 per cent. In 1966 more than 60 courses were offered through the network of collaborating universities. Research projects on four different aspects of sanitary engineering were started during the year, with modest support from the Organization. Two are in Mexico, and one each in Brazil and Peru.

These activities are strengthening the countries' resources for manpower training and are stimulating the development of an indigenous research capability. Foundations of great importance to future development are thus being laid.

Further information on training activities is given in Chapter III of this *Report* (Education and Training).

The Institute of Occupational Health and Air Pollution Research Project in Santiago, Chile, is functioning very effectively to solve major problems of protecting the health of industrial workers. The Institute completed arrangements for an air pollution monitoring network for which the Institute will provide laboratory services. Requests for technical assistance in air pollution increased markedly. A full report on the work of the Institute is contained in the Industrial Health section of Chapter II of this *Report* (Promotion of Health).

Several projects considered suitable for submission to the United Nations Development Program in the field of environmental sanitation were under study. Increased emphasis is being placed on this Program by the Washington Headquarters and the Zone and country staff.

At the Regional Symposium on Administration of Water Supply and Sewerage Services, conducted by the Organization (San Salvador, El Salvador, 28 November-3 December 1966), it was evident that the importance of sound organizational structure and good management was receiving much greater recognition by those responsible for administration of water and sewerage works. During the Symposium, the opportunity was taken to hold jointly a series of meetings of the Organization's Headquarters staff, Zone engineers, and the project managers of the United Nations Development Program projects. Program activities in every area of environmental sanitation were reviewed critically and recommendations were proposed

for consideration by the Director of PASB and by the Organization's Governing Bodies.

WATER SUPPLIES

Impressive progress was made toward achieving the goals for community water supply service set by the Governments in the Charter of Punta del Este. Contributing factors have been: (a) the recognition by the Governments of the problems involved and the assignment to national, regional, and local agencies or institutions of the responsibility for carrying out the required programs; (b) the development of those agencies to meet their responsibilities; (c) the existence in most countries of a considerable number of sanitary engineers and technicians trained or being trained to undertake the programs; (d) the increasing availability of funds from both national and international sources for financing water supply system construction and extension; (e) the technical assistance furnished by international agencies, including the Pan American Health Organization, on all phases of the program—from feasibility studies to organization and management.

It is estimated that 39 per cent of the population of Latin America had water service at the beginning of 1966. Whereas more than 60 per cent of the urban population were receiving water service provided by either house connections or public hydrants, only 15 per cent of the rural population was being served, including those supplied from house connections, public hydrants, and community wells with hand pumps.

As for the goals set in the Charter of Punta del Este for the community water supply programs in Latin America (service to 70 per cent of the 1971 population in urban areas and to 50 per cent in rural areas), 68 per cent of that goal had been achieved by January 1966 in the urban program. However, the rural program, in which only 29 per cent of the population established as the goal for 1971 was served, was lagging behind in meeting its target.

The multi-million dollar programs under way in most countries of Latin America have required the expansion of existing water supply institutions or the development of new agencies. Many of these institutions have requested the Organization's assistance in improving their management procedures to keep pace with their expanding activities. In 1965 the Organization developed a new technique which in 1966 was most successful in providing the requested assistance. Consultation is provided in depth by a group of consultants working directly with the members of the institution. Organization and procedures are

TABLE 16. COLLABORATION PROVIDED BY PAHO IN COMMUNITY WATER SUPPLY AND OTHER ENVIRONMENTAL SANITATION ACTIVITIES (STAFF AND SHORT-TERM CONSULTANTS), 1966

Type of services	Zone I				Zone II				Zone III						Zone IV			Zone V			Total																
	Jamaica	Trinidad and Tobago	Barbados	West Indies	Venezuela	Cuba	Dominican Republic	Haiti	Mexico	British Honduras	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama	Bolivia	Colombia	Ecuador	Peru		Brazil	Argentina	Chile	Paraguay	Uruguay											
COMMUNITY WATER SUPPLY																																					
Water authorities—Organization or improvement	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x											
Other agencies—Organization or improvement	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x											
Water supply system—Design	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x											
Organization and management	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x											
Problems																																					
Planning—National or regional																																					
Water rates—Establish or improve																																					
Public relations																																					
Rural community water supply	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x											
Groundwater exploration, drilling																																					
Community development, self-help	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x											
Water quality control																																					
Water resources study																																					
Water resources study																																					
Revolving fund mechanism																																					
Fluoridation																																					
Laboratories—Installation, operation	x																																				
Design standards, criteria—Development																																					
UNICEF projects	x																																				
Financing—Method or prep. loan request																																					
OTHER ENVIRONMENTAL SANITATION																																					
Ministry of health—Assistance	x																																				
Sanitary engineering department assistance	x																																				
Environmental sanitation (miscellaneous)	x																																				
Pollution control, sewage treat., ind. waste	x																																				
Privy program	x																																				
Oxidation ponds—Design and use																																					
Solid waste, sanitary landfill	x																																				
Air pollution control	x																																				
Industrial hygiene and radiation	x																																				
Studies or surveys	x																																				
UNDP projects—Supervise or develop	x																																				
Sanitary engineering programs—Universities	x																																				
Short courses—Organize or present																																					
Course—Sanitary inspectors																																					
Seminars, symposia	x																																				
Centers or institutes																																					
Manuals—Preparation																																					
TOTAL	14	2	14	7	12	11	6	18	7	17	8	18	17	14	15	10	13	2	7	20	18	20	22	15	12	15	13	10	12	12	17	9	4	2	2	14	336

TABLE 17. SERVICES PROVIDED BY SHORT-TERM CONSULTANTS, 1966

Field	Number of consultations	Man-months
Water supply, sewerage, water pollution..	80	89
Environmental sanitation (including solid waste).....	12	8
Industrial hygiene, air pollution.....	9	7
Miscellaneous.....	20	18
Total ^a	121	122

^a Includes short-term consultants used for short courses (56 consultations totaling 49 man-months).

analyzed; improvements are worked out together; operation manuals are developed; and training programs are held.

This type of consultation, provided in two countries (Honduras and Nicaragua) in 1965, was extended in 1966 to the National Water Supply and Sewerage Administration (ANDA) of El Salvador, the State Board of Sanitary Works (OSE) in Uruguay, and the Institute for Municipal Development (INSFOPAL) in Colombia. Preliminary investigations were made in Brazil and in Chile preparatory to providing consultation there, and follow-up studies were carried out in Honduras and in

Managua, Nicaragua. Requests for similar assistance were received from 17 agencies in 11 countries and studies are under way to establish priorities and determine how best to meet these requests.

Generally, the agency receiving the assistance cooperates in financing its cost. Sometimes this financing is included as a condition in an Inter-American Development Bank loan.

Many other types of consultation (Table 16) were provided by full-time Organization field staff consisting of: 19 sanitary engineers and advisers, who spent a major portion of their time on the community water supply program; 22 sanitary engineers assigned to general environmental health projects, who dedicated about half their time to water supply activities; 6 advisers in industrial hygiene, air pollution, and housing; and 6 sanitary engineers assigned to sanitary engineering education projects.

The Organization made even more extensive use of short-term consultants during 1966. A total of 82 short-term consultants provided 122 man-months of service in 22 countries (Table 17). This compares with 73 short-term consultants who provided 93 man-months of consultation to 22 countries in 1965.

Organization staff participated in a number of broad survey missions, with a water supply element, sponsored

TABLE 18. LOANS APPROVED OR SIGNED DURING 1966 FOR COMMUNITY WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA
U.S. dollars

Country	Lending agency	Purpose	Loan
Argentina.....	AID	Feasibility studies—Central Argentina.....	1,400,000
	IDB	Water and sewerage for the city of Almirante Brown.....	7,000,000
Bolivia.....	IDB	Water supply for 5 cities.....	18,500,000
	AID	Small systems.....	412,000
Brazil.....	IDB	Complete Salvador-Bahia water supply system, construct or extend 200 water supply systems.....	15,000,000
	IDB	Water supply system for 5 cities.....	14,450,000 ^a
	IDB	Belo Horizonte water supply systems.....	12,000,000 ^a
	AID	Guanabara master plan.....	2,600,000
	AID	Guanabara beach study.....	2,500,000
	AID	National Water Financing Fund.....	5,900,000
Chile.....	IDB	Construct or extend 39 water supply systems.....	15,500,000
Ecuador.....	IDB	Quito water supply systems extension.....	12,000,000 ^a
Guatemala.....	IDB	Water supply for 23 cities and sewerage systems for 3 cities.....	3,020,000
	IDB	Water supply systems for 90 rural towns.....	1,300,000
Panama.....	AID	Panama City and Colón, water supply and sewerage system extensions.....	3,055,600
Peru.....	IDB	Water supply and sewerage systems for 100 cities, 2,000 to 30,000 population..	8,100,000
Venezuela.....	IBRD	Caracas water supply system improvement.....	21,300,000
	IDB	Water supply for 3 cities and continuation of Maracaibo sewerage system.....	17,200,000 ^a
Total.....			161,237,600 ^b

^a Approved but not available until contract is signed by lending agency and Government.

^b The loan funds are matched by \$161.9 million dollars allocated by Governments.

I. PROTECTION OF HEALTH: ENVIRONMENTAL SANITATION

by other international agencies in Latin America, including World Bank missions in Brazil, Colombia, and Central America; an Inter-American Development Bank mission to the Dominican Republic; and the Economic Commission for Latin America studies in Paraguay and Uruguay.

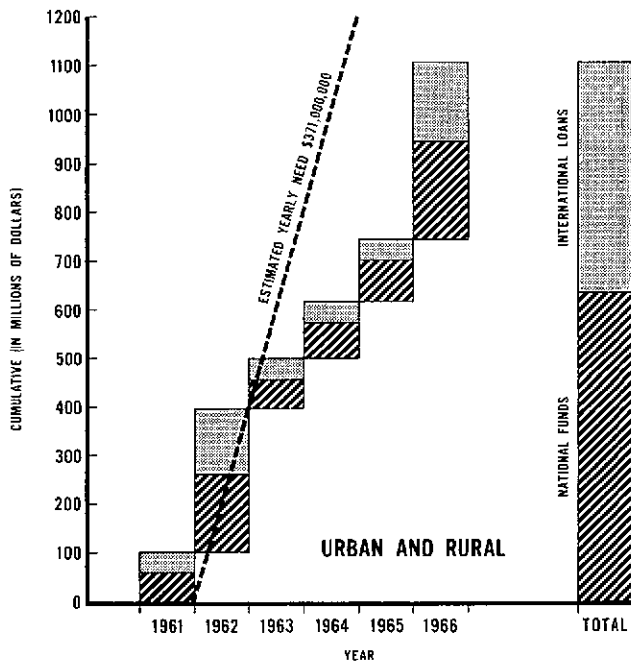
Loan activities by the international lending agencies (Table 18) were at an all-time high in 1966; during the year 18 loans totaling \$161.2 million were approved or signed. This exceeded the peak of \$137.7 million reached in 1962 (Figure 6). It is estimated that during 1966 the countries themselves allocated approximately \$200 million for water supply and sewerage constructions, of which \$161.9 million was to match the loan funds.

With these national and international allocations of funds, during the period from January 1961 to December 1966 a total of \$1.1 billion was made available for water supply and sewerage system construction (Table 19). Of that total, it is estimated that \$939.8 million was allocated

for the construction of urban water supply and sewerage systems (Figure 7).

Approximately 52 million people will be benefited by this construction, much of which is for improving and extending existing systems.

The Regional Symposium on Administration of Water Supply and Sewerage Services, convened by the Organization from 28 November to 3 December 1966 in San Salvador, El Salvador, was attended by more than 100 participants from all countries of Latin America. The agenda included 17 items, encompassing: organizational structure, accounting, budgeting, billing and collecting, personnel administration, planning water supply systems, specifications and contracts, purchasing and warehousing, water rates, project programming and control, community development, and public relations. The working papers, compiled into a 563-page volume, made a valuable contribution to the material available in this field.

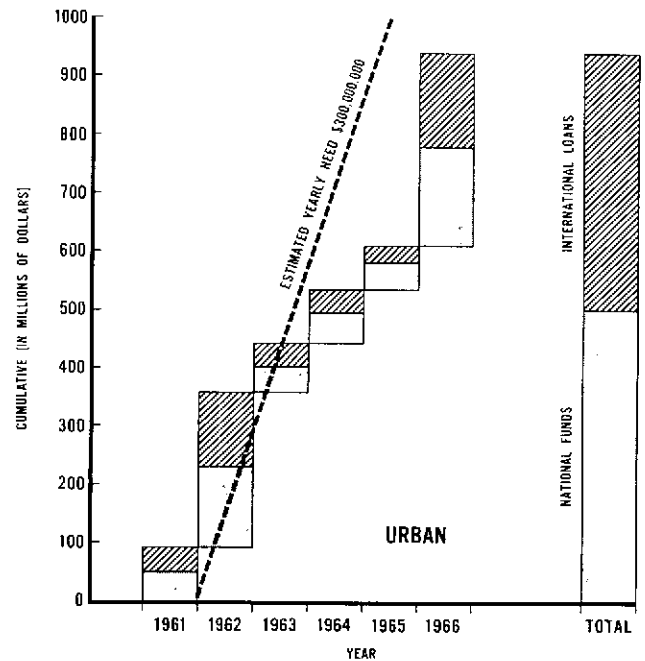


Source	1961	1962	1963	1964	1965	1966	Total
International loans	44.14	137.74	42.87	44.56	43.91	161.24	474.46
IDB	25.65	106.30	28.55	36.25	32.34	124.07	353.16
AID	3.50	17.44	11.32	8.05	9.30	15.87	65.48
IBRD			3.00			21.30	24.30
EXIMBANK	14.99	14.00		0.26	2.27		31.52
National funds	59.69	156.56	59.20	74.87	81.70	201.89	633.91
Total	103.83	294.30	102.07	119.43	125.61	363.13	1,108.37

Amounts in millions of U.S. dollars

Note: Loans, until signed, are included in year of approval; thereafter they are listed in year of signature.

FIG. 6. NATIONAL FUNDS AND INTERNATIONAL LOANS ALLOCATED FOR THE CONSTRUCTION OF URBAN AND RURAL WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA (JANUARY 1961 TO DECEMBER 1966).



Source	1961	1962	1963	1964	1965	1966	Total
International loans	43.14	127.74	41.82	39.35	27.61	156.94	439.60
IDB	24.65	96.30	28.55	31.04	16.04	122.77	319.35
AID	3.5	17.44	10.27	6.05	9.30	15.87	64.43
IBRD			3.00			21.3	24.30
EXIMBANK	14.99	14.0		0.26	2.27		31.52
National funds	51.19	136.56	43.20	52.87	45.30	171.09	500.21
Total	94.33	264.30	85.02	92.22	72.91	331.03	939.81

Amounts in millions of U.S. dollars

Note: Loans, until signed, are included in year of approval; thereafter they are listed in year of signature.

FIG. 7. NATIONAL FUNDS AND INTERNATIONAL LOANS FOR THE CONSTRUCTION OF URBAN WATER SUPPLY SYSTEMS IN LATIN AMERICA (JANUARY 1961 TO DECEMBER 1966).

TABLE 19. FUNDS ALLOCATED FOR CONSTRUCTION OF WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA
January 1961-December 1966
U.S. dollars

Country	International Loans					Estimated national matching funds
	IDB		IBRD	AID	EXIMBANK	
	Water	Sewerage	Water	Water Sewerage ^a	Water Sewerage ^a	
Argentina.....	33,730,000	2,270,000		1,400,000	—	43,030,000
Bolivia.....	2,600,000	—		933,000	—	972,500
Brazil.....	96,560,000	14,650,000		20,300,000	—	119,364,000
Chile.....	26,645,000	—		2,840,000	187,850	21,104,000
Colombia.....	27,751,397	7,233,000		8,400,000	2,275,000	38,208,600
Costa Rica.....	1,400,000	140,000		4,900,000	4,000,000	2,824,000
Dominican Republic.....	1,150,000	—		3,000,000	—	1,050,000
Ecuador.....	17,200,000	3,568,000		—	—	8,423,000
El Salvador.....	7,680,000	1,520,000		—	—	4,540,000
Guatemala.....	6,217,804	2,000,000		—	—	4,177,200
Haiti.....	2,360,000	—		—	—	350,000
Honduras.....	2,550,000	—		1,050,000	—	650,000
Jamaica.....	—	—		3,700,000	—	1,800,000
Mexico.....	13,474,000	550,000		—	36,000	9,296,000
Nicaragua.....	—	185,000	3,000,000	—	—	3,050,000
Panama.....	2,762,000	—		10,355,600	—	5,173,000
Paraguay.....	265,000	—		—	—	—
Peru.....	9,289,539	4,371,360		8,600,000	6,623,505	13,506,000
Trinidad and Tobago.....	—	—		—	9,000,000	9,113,000
Uruguay.....	9,343,000	2,500,000		—	1,900,000	21,057,000
Venezuela.....	46,000,000	7,200,000	21,300,000	—	7,500,000	121,131,000
Total.....	306,977,740	46,187,360	24,300,000	65,478,600	31,522,355	428,909,300

International Loans.....\$ 474,466,055
National Matching Funds.... 428,909,300
Other National Funds..... 205,000,000

Total Funds.....\$1,108,375,355

^a See section on Sewerage and Water Pollution for estimates of funds allocated for construction of sewerage systems.

At the meeting of the Zone and Washington Office engineers held concurrently with the Symposium, it was the consensus that Latin America has come of age technically speaking, in the traditional public health sense, and the Organization's assistance should therefore be on a higher level of consultation and advisory service; that industrialization and economic development are proceeding at unprecedented rates, and the Organization must act with equal speed to broaden and modernize its services to the Governments; and that since the needs and demands for sanitary engineering services from PAHO far outstrip available resources, priorities must be set and new approaches developed.

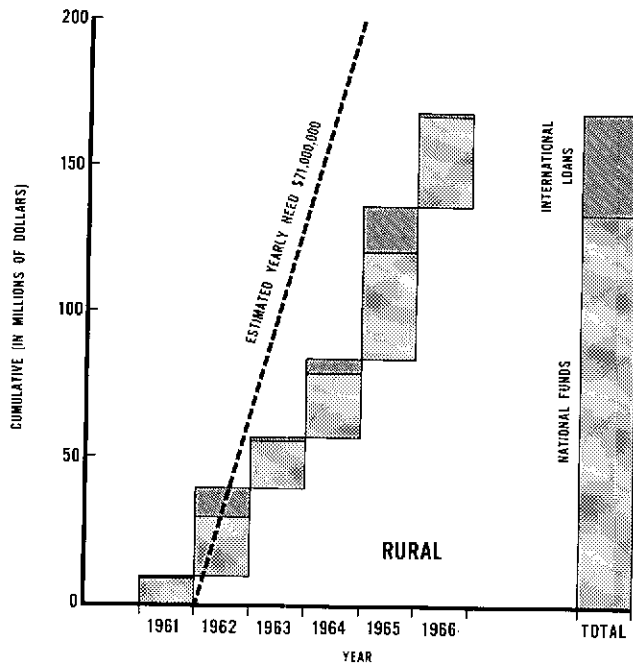
PAHO representatives participated actively in the preparation of material for the International Conference on Water for Peace, scheduled to take place in Washington,

D.C., from 23 to 31 May 1967 under the sponsorship of the Government of the United States of America. At the Conference more than 5,000 participants will assemble from 100 countries to explore the water problems of the world, including water resource conservation, development, and industrialization.

Rural Areas

In 1961 it was estimated that the rural inhabitants of Latin America accounted for 53 per cent of the total population. By 1966 the figure had decreased to 47 per cent, and by 1971 the rural population will probably constitute only 43 per cent of the total. The number of rural inhabitants for 1971 is currently estimated at approxi-

I. PROTECTION OF HEALTH: ENVIRONMENTAL SANITATION



Source	1961	1962	1963	1964	1965	1966	Total
International loans	1.00	10.00	1.05	5.21	16.30	1.30	34.86
IDB	1.00	10.00		5.21	16.30	1.30	33.81
AID			1.05				1.05
National funds	8.50	20.00	16.00	22.00	36.40	30.80	133.70
Total	9.50	30.00	17.05	27.21	52.70	32.10	168.56

Amounts in millions of U.S. dollars

Note: Loans, until signed, are included in year of approval; thereafter they are listed in year of signature.

FIG. 8. NATIONAL FUNDS AND INTERNATIONAL LOANS FOR THE CONSTRUCTION OF RURAL COMMUNITY WATER SUPPLIES IN LATIN AMERICA (JANUARY 1961 TO DECEMBER 1966).

mately 120 million, instead of the 128 million estimated formerly.

This trend presents problems from the standpoint of both rural and urban development. One of the ways in which the rural-urban population flow can be diminished, and the agricultural economy thereby strengthened, is to provide more of the amenities of urban living for rural communities—foremost among them, safe and convenient water supplies.

Greater efforts must be directed toward assisting the rural communities to obtain these facilities—to develop new administrative and financial arrangements; to revise standards; to encourage innovation; and to make the hard choices necessary to accelerate the present pace. The Organization is helping the countries to develop and try new procedures and assembly-line methods.

The importance of community participation continues to be stressed and the Organization has assisted in the many aspects of community development in a number of

countries and areas, including Argentina, British Honduras, Chile, Costa Rica, the Dominican Republic, El Salvador, Honduras, Jamaica, Panama, Peru, and Venezuela.

In the rural community water supply programs assistance was provided to most of the countries (see Table 16), on the development of regional plans; preparation of loan requests; improvement of management procedures; establishment of realistic design standards; and stimulation of research on simplified methods and equipment.

Research work is well advanced on the development of a low-cost hand pump that will overcome the deficiencies of existing models and can be manufactured in most countries of the developing world. This work was undertaken at the suggestion of the Organization, and with the cooperation and financing of the U.S. Agency for International Development.

While excellent progress was made in the rural water programs in a few countries, major breakthroughs still have not been made in most. Only one loan was signed during 1966 for a rural water program—an Inter-American Development Bank loan of \$1.3 million for 90 rural communities in Guatemala—as compared with three loans extended in 1965, three in 1964, and one in each of the previous three years (Figure 8). Several loan requests were prepared and are under study by AID and IDB and it is expected that in 1967 more loan money will be made available for the rural programs.

Two of the loans signed in 1965 for rural water programs included provisions for the use of revolving fund mechanisms, one for Argentina and the other for Costa Rica. By the end of 1966 work was well advanced on setting up the procedures, especially in Argentina where the Government deposited a considerable amount to the account of the National Water Supply and Rural Sanitation Service (SNAP), which is in charge of the program. The offices to be directly responsible for the programs at the provincial level were being established. A number of individual projects were prepared, submitted for approval, and scheduled for construction in 1967. Revolving funds were established on a smaller scale in other countries, including Honduras, Panama, and Peru.

During 1966 considerable progress was made in the extensive program started in Brazil in 1965, using the revolving fund mechanism for financing projects in middle-sized communities (10,000 inhabitants and above). By the end of that year it was reported that loans totaling more than \$15 million had been approved for projects with a total value of \$26 million. It is estimated that each dollar loaned to the revolving fund from

an international source will generate construction valued at \$11.80.

The Organization's first proposal on the use of the revolving fund mechanism, presented at the XIV Meeting of the Directing Council in August 1963, was revised and brought up to date in the light of recent experience. Conditions were suggested for establishing national revolving funds and for making loans from the funds to qualifying communities.

Tremendous efforts must be made during the remainder of the decade if the Charter goal is to be achieved in the field of rural water supplies. Current estimates are that services must be provided for approximately 7 million additional inhabitants each year until 1971.

The sanitary engineering profession of Latin America is so concerned by the slowness of the rural program that the first resolution passed at the X Congress of the Inter-American Association of Sanitary Engineering took note of the great gap existing between the needs and the progress of the program and recommended: that the Governments intensify their rural programs, assigning the highest priority to them; that international lending agencies emphasize and strengthen the assistance to the rural programs; and that the Organization of American States be urged to include in the agenda for the April 1967 Meeting of American Chiefs of State the study of the problem of providing potable water supplies for rural areas, and of the need for establishing a special mechanism for the financing of those supplies.

SEWERAGE AND WATER POLLUTION

Most countries of the Hemisphere continued to carry out programs for the construction or expansion of sewerage systems, although progress was slower than in the case of the water supply programs. It is already evident that only a few countries will attain the urban sewerage goals established in the Charter of Punta del Este. The progress of these programs in rural areas was very slow, and in the future new techniques and financing arrangements will have to be devised.

Up to the end of 1966 the international lending agencies had made loans of approximately \$72 million for the construction or expansion of sewerage systems in urban areas, and the local counterpart funds are estimated to have amounted to \$100 million. The following loans have been made:

Inter-American Development Bank

Argentina	US\$ 2,270,000
Brazil	14,650,000
Colombia	7,233,000
Costa Rica	140,000
Ecuador	3,568,000
El Salvador	1,520,000
Guatemala	2,000,000
Mexico	550,000
Nicaragua	185,000
Peru	4,371,000
Uruguay	2,500,000
Venezuela	7,200,000

Agency for International Development

Brazil	US\$ 2,500,000
Chile	840,000
Colombia	4,595,000
Panama	4,220,000
Peru	2,900,000

Export-Import Bank

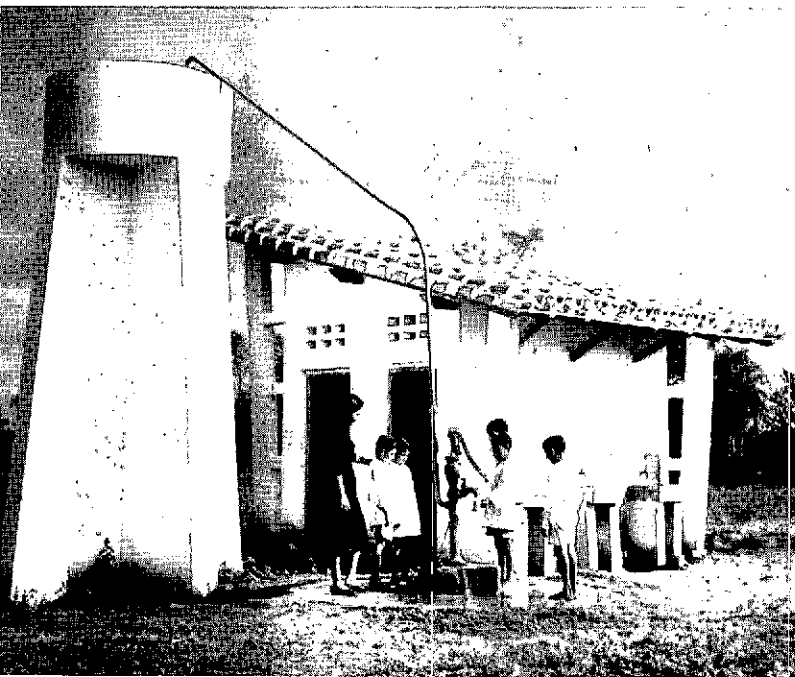
Peru	US\$ 1,500,000
Trinidad and Tobago	9,000,000

All the works financed by external loans are now under construction and will benefit large segments of the urban population.

A short-term PAHO consultant advised the Ministry of Health of Jamaica on a problem of beach and seawater pollution in the Montego Bay area, due to the discharge from the new waste water collectors built as part of the expansion of the sewerage system. A similar problem exists on the beaches of Montevideo, Uruguay. In the past the Organization has assisted with studies to find the best method of discharging waste water into the sea, and late in 1966 the necessary arrangements were made to send an advisory team to Montevideo early in the new year. As the result of the visit by the team, the Municipal Council of Montevideo is expected to apply to the United Nations for technical assistance.

Preliminary negotiations took place with the Sanitation Corporation of Lima, Peru, for advisory services on organizing a program to control the volume of industrial effluents being discharged into the sewerage system of Lima. Permanent engineering staff assigned to the water program of the Peruvian Ministry of Development and Public Works will commence their advisory duties in January 1967.

To study the possibility of establishing an advanced technical center that would help solve the complex problems of water pollution in large metropolitan areas of the countries of the Region, a short-term consultant from the Organization travelled to Argentina, Brazil, Chile, Guatemala, Mexico, Peru, and Venezuela. He visited the agencies responsible for the administration and operation of



In Paraguay, a teacher explains to her pupils the importance of good quality water in reducing the incidence of disease.



In a Peruvian village, a small child uses the pump newly installed.

The people of a rural town take an active part in laying the pipes for their new water supply.



The construction of good housing is essential for the reduction of disease and the improvement of health.

water supply and sewerage systems in those countries with a view to finding a solution to the technical, financial, social, and health problems arising from water pollution. This marks the first step toward implementing Resolution XXXV of the XVI Meeting of the PAHO Directing Council (Washington, D.C., 1965), which urged that the countries give proper attention to such problems, especially in large urban and industrial areas. The existence of a center for research, teaching, and the dissemination of information would undoubtedly prove instrumental in controlling the pollution of the bodies of water from which the cities of the Hemisphere draw their supply.

HOUSING

Health aspects of housing and of residential environment in urban and rural areas constitute one of the greatest causes of concern to the Governments as far as the growth of population centers is concerned. Although almost all the countries have specialized agencies in this field and have embarked on programs to apply increasing financial resources to this end, the over-all situation is still critical, particularly where housing for low-income families is concerned.

The Organization's activities in the field of housing and urbanization were stepped up during 1966. In March a specialized consultant was detached to the Dominican Republic to collaborate with the advisory mission of the OAS-IDB-ECLA Coordinating Committee in the Government's program for economic and social planning, which provides for a survey of the general housing situation and certain related aspects of urbanization in the capital and other cities as the basis of a short-term housing program in 1967-1968. On completion of the mission, a report containing the pertinent recommendations was prepared.

The services of the consultant on housing and urbanization and of a sanitary engineer were made available for the course on housing planning organized by ECLA and the Latin American Institute for Economic and Social Planning and held in Santiago, Chile, from May to June 1966. Thirty-four officials from national housing agencies in almost all countries of Latin America attended and had an opportunity to broaden their knowledge of planning techniques and how they are applied to economic, social, and administrative aspects of housing, and to view the problem in its correct context within the over-all development situation in different countries.

A Seminar on Health Aspects of Housing, organized jointly by the School of Sanitary Engineering (Faculty of

Engineering, University of Buenos Aires) and the Organization, was held in Buenos Aires, Argentina, from 3 to 8 October and was attended by top-level officials from national and municipal agencies concerned with this problem.

An Inter-Regional Seminar on Development Policies and Planning in relation to Urbanization, organized by the United Nations in cooperation with the United States Government, was held in Pittsburgh, Pennsylvania, from 24 October to 4 November and was attended by representatives from 27 countries, seven of them Latin American. In addition to other important aspects of urbanization, attention was drawn to the need for the solution to urban problems, particularly as regards the health services, to be consistent with available municipal resources and with the financial and administrative capabilities of the countries.

A Seminar on Environmental Health in Urban Planning was held in Mexico City from 7 to 12 November, under the joint sponsorship of the United States-Mexico Border Public Health Association, the health authorities of the two countries, and the Organization. The meeting adopted important decisions to improve the health conditions of cities and metropolitan areas at several points along the border between these countries.

In Peru preparations to establish an experimental neighborhood unit continued with the participation of ECLA and PAHO experts. The Government took steps to set up the committee that is to study the project, appointed the technical and administrative personnel, and allocated the necessary operating funds. An application for financial support was submitted in August to the Special Fund of the United Nations Development Program (UNDP). An office established in Lima will be in charge of preliminary technical work in connection with the unit, which has been given the official name: "experimental housing project," or PREVI. The proposed organization provides for three distinct activities: (a) establishment of the neighborhood unit; (b) rehabilitation of houses; and (c) development of land and services. A UNDP mission was established in Lima in December 1966 to evaluate the broad features of the project and study the most suitable locations in which to carry on the three different activities.

By agreement between PAHO and the OAS, a sanitary engineer was appointed in May to serve at the Inter-American Housing and Planning Center (CINVA) in Bogotá, Colombia, and to cooperate with its teaching staff in the planning, organization, and development of instruction in sanitary engineering, environmental sanitation, and public health, especially as they relate to housing.

The architect specializing in rural planning who was sent to Venezuela at the end of 1965 continued to act as adviser on the preparation of the rural housing and agrarian planning programs which the country is conducting. At the request of the Center for Training and Applied Research in Agrarian Reform (CIARA), he also prepared the curriculum for the course in rural architecture, for which he will be responsible and which will be held in September 1967.

The Organization was represented at all the Interagency Meetings on Housing and Urban Development that were held periodically at the OAS headquarters in Washington, D.C. The first of these meetings was convoked by the Inter-American Committee on the Alliance for Progress (CIAP) in June 1965 and was attended by representatives of AID, ECLA, IDB, OAS, UN, and PAHO. Similar meetings were held in January, March, June, November, and December 1966. At the third meeting it was decided to carry out a pilot project in Central America, with several agencies participating, in order to make a complete cost comparison of efficient systems of housing administration, design, and construction. It is planned to build 50 dwelling units combining urban and rural aspects in each Central American country and Panama. The programming will be done by a group of experts appointed by the participating agencies; it is expected that the group will begin its work in April 1967. The pilot project should be completed and ready for evaluation during the second quarter of 1968.

The Organization played an active part in planning and organizing the Inter-Regional Seminar on Rural Housing and Community Services which is scheduled to be held in Maracay, Venezuela, in April 1967 under Venezuelan Government and United Nations auspices.

OTHER ACTIVITIES

The Organization assisted in the planning, organization, and conduct of the X Congress of the Inter-American Association of Sanitary Engineering (AIDIS), held from 4 to 10 December in San Salvador, El Salvador. It was attended by more than 400 engineers belonging to the Association, who came from all the countries of the

Region. Twenty-five important resolutions covering virtually every field of sanitary engineering were approved, many of them calling on the Organization to continue and broaden its cooperation in the programs that the countries are carrying out.

The Organization provided two consultants to give advice on solid waste disposal to the municipal authorities of Buenos Aires (Argentina), Lima (Peru), and Santiago (Chile), and cooperated in two short courses on this subject, one at the University of Chile and the other at Buenos Aires University. It also will cooperate with the municipality of Buenos Aires and the University's School of Sanitary Engineering in a study of the city's complex problem of solid waste disposal. In this connection, the X Congress of AIDIS approved a resolution recommending the establishment, within the Association, of an Institute of Solid Waste Disposal with its headquarters in Buenos Aires. The American Association of Public Works (USA) offered its support and cooperation in carrying out this project, which would do much to encourage the study and solution of refuse collection and disposal problems in urban areas throughout the Hemisphere.

Preliminary steps were taken in Lima, Peru, to consolidate the solid waste collection and disposal services, which at present are dispersed among a large number of small municipalities surrounding the city. The Organization offered its cooperation, and a short-term consultant made a preliminary visit to the area at the end of the year. The authorities of Santiago, Chile and of neighboring municipalities showed considerable interest in improving their solid waste disposal services and organized a short course on the subject in the School of Public Health of the University of Chile.

Cooperation with ECLA in surveying the countries' water resources continued, with one sanitary engineer permanently assigned to that agency. During the year the Organization participated in the ECLA mission that surveyed the water resources of Paraguay, and revised the report on water supply and sewerage systems in Uruguay, which had been prepared the year before. Preparations were begun to make similar surveys in the countries of Central America during the first few months of 1967. To this end, the mission will be temporarily based in Guatemala City for the duration of the studies.

II. PROMOTION OF HEALTH

A. GENERAL SERVICES

GENERAL HEALTH SERVICES

This section on the activities conducted by the countries with the Organization's assistance in connection with projects for developing general health services will be confined to highlighting aspects of health administration, since activities in the other specific fields are described either in the previous chapter or in other sections of this chapter.

During the year the Governments continued to set up and organize their health programs in accordance with the policy of coordinating and integrating the activities to be carried on by the general health services. The number of countries or territories with projects of this kind and receiving advice from PAHO/WHO was 27, the same as in 1965. The number of projects, however, rose from 31 in 1965 to 38 in 1966, in keeping with the trend of the past 16 years. Most projects (24) had nation-wide objectives, combining activities at the central, regional, and local levels; some (8) were aimed at organizing health regions; and a few (3) covered an entire state or province. In the three countries where public health activities have developed more rapidly the authorities opted for the services of short-term consultants in specific health administration fields to strengthen their general health services.

To provide the advisory services needed for these 38 projects, there were 71 permanent international posts, of which 27 were filled by medical officers, 20 by sanitary engineers, 18 by nurses, 4 by statisticians, and 2 by administrators. In addition, there were 2 posts for sanitation inspectors.

In several countries, the existence of projects for developing general health services at the national and state levels helped promote the parallel development of services at both the central and regional and the local levels, since the advisory services given at the ministerial level were coordinated with those given in the field.

Another approach—adopted by Bolivia, Ecuador, and Peru in an effort to speed the integration of their Indian communities into the social and economic life of the country—consisted in developing specific community programs in selected areas of the Andean region. One of the objectives of these programs was to improve the local structure in accordance with the scheme of general health services.

The Organization also cooperated with the Government of Peru in similar activities programmed for the health sector under the national plan for the development and integration of the Indian population. Activities were begun in seven areas in the Andean cordillera (total population 1.2 million), with financial assistance from the Inter-American Development Bank.

As in previous years, the basic purpose of the general health services programs was to provide as many people as possible in each country with such basic health services as medical care, maternal and child care, environmental sanitation, and control of preventable diseases. In order to maintain, expand, and improve these basic services, the Governments have been paying increased attention to the tools needed to sustain them, notably a knowledge of problems and resources; health activity planning; improved statistics; better nursing, nutrition, and other services of universal application; personnel training; and research.

The planning of health sector activities in recent years has made it possible to redefine objectives and improve installed capacity by rationalizing administrative machinery and arousing the interest of the Governments and of the international lending agencies in investing in this sector.

Study of problems and resources and operational research have now become routine practice in the general health services, as a preliminary to initiating or coordinating activities within the public health sector itself or with the independent or private subsectors. The agencies re-

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sponsible for administering the general health services and social security systems have also begun to identify the purposes and objectives of preventive and curative medical care; this has resulted in improved planning of programs and investments in an effort to avoid duplication of cost and effort.

With this aim in mind, Costa Rica, the Dominican Republic, Ecuador, Nicaragua, and Peru completed important negotiations between their health ministries and their social security services, while El Salvador, Honduras, and Nicaragua carried out studies on the problems and resources of both agencies in the medical care they offer.

In 1966, 19 countries had health planning units in operation; 11 had completed the diagnosis of their health situation; 5 were preparing to make the diagnosis; 13 had formulated plans; and 8 had started to implement the approved plans. Argentina began the process in the Provinces of San Juan and Tucumán, which were selected as program areas. In 13 countries the preliminary health budgets were being prepared on a program basis; in addition, 13 countries were improving their administrative systems.

The countries allocated a larger proportion of their budgets to health during the year. Three countries devoted 10 per cent or more of their general budget to health; 12 countries devoted from 10 to 5 per cent; and five countries devoted less than 5 per cent to these activities.

Rationalization of the use made of personnel, funds, and existing facilities was a key objective in the projects for developing general health services. It was seen as a means for increasing their efficiency and effectiveness, as well as a valuable complement to health planning and personnel training. Aside from the progress made in improving administrative practices, the health ministries of several countries installed mechanized or electronic tabulating and data-processing equipment to simplify and speed up their administrative work and to make statistical data on program progress and cost and on the health situation more readily available.

The countries showed continuing concern for improving the training of administrative personnel. The Organization sponsored international courses in Chile and Costa Rica and made arrangements for top-level administrative officers from various countries to attend. The course in Chile (four months) began in July, with 20 participants (7 Chileans and 13 PAHO/WHO fellows from other countries). The 11-week course in Costa Rica began in May and there were 8 participants.

Further details of education and training activities are given in Chapter III of this *Report*.

The evaluation of project activities became standard practice, and the progress achieved in this area is evident from the information that became available: figures on annual targets, standards for carrying out activities, data on actual achievements, and technical and administrative assessment of the results achieved.

Most countries completed or continued their surveys of existing personnel, plant and equipment resources, as well as studies to assess program performance. Argentina completed its tabulation of the data on health resources and establishments obtained during the survey conducted in 1964, and the full results were published. Several provinces concluded studies on the cost of health activities. Technical and administrative standards for operating health services were formulated in Cuba and Guatemala, and a new health code was approved in Honduras.

Several countries strengthened the central administration of their general health services by establishing a national department for their development or appointing one or more health region coordinators and various categories of personnel exclusively engaged in planning and administering these programs. The Ministry of Social Welfare and Public Health in Argentina was completely reorganized and a ministerial office was set up to handle these matters. Costa Rica established a Technical Council as part of the Ministry of Public Health. Cuba reduced the number of its under-ministries of health and set up additional national departments; it also established national standards for organizing and operating its health regions. Ecuador created a Coastal Health Region as a separate agency. Jamaica made headway in decentralizing its services by establishing nine hospital boards. Other countries set up additional technical units at the central level in the fields of environmental sanitation, hospital administration, demography, nursing, nutrition, and training.

The Organization continued to promote the gradual assumption by the general health services of certain responsibilities in the intensive campaigns or vertical programs currently under way. Its efforts have led to greater participation by these services in organizing communities with a view to facilitating health programs, particularly in the fields of environmental sanitation, control and eradication of preventable diseases, and improved nutrition.

The routine activities of the general health services conducted through their outpatient clinics, hospitals, health centers and posts, continued to include the preventive and curative care of mother and child, with special

emphasis on nutritional aspects and the control of communicable diseases.

Chapter VIII (Project Activities) contains details of the work carried out under general health service projects, including data on medical and dental care, vaccinations, educational visits and interviews, and environmental sanitation activities.

NURSING

During the year the Organization collaborated with the countries in their nursing programs through the provision of 36 full-time nursing advisers and 34 short-term advisers at the country level, nine full-time advisers at the intercountry level, and two regional advisers. The activities in which assistance was given are summarized in Table 20.

Latin America and the Caribbean area are faced with a growing challenge in the efforts to meet the nursing needs of the rapidly developing and expanding health care programs. While the ratio of nursing personnel per 10,000 population has increased to 11.9 and 9.8 in Middle America and South America, respectively, the quantity is insufficient to fill the requirements. As to the quality of the service provided, the rate of increase in the number

of graduate nurses serving in many institutions and programs is inadequate to ensure even minimal safe nursing care. In some countries budget restrictions are the limiting factor, rather than the unavailability of graduate nurses or the impossibility of preparing them.

To cope with this problem, the most effective utilization must be made of all nursing resources, and this can be achieved only through coordinated, comprehensive planning of both service and education. On the basis of a study made of nursing needs and resources, Trinidad and Tobago drew up a comprehensive 10-year plan for the development of its nursing services. In Brazil, three nurses attended the planning course given at the Superintendency of Development of the Northeast (SUDENE) in Recife, and in Chile several nurses enrolled at the School of Public Health in Santiago were given the opportunity to take the planning course conducted in the School. In Argentina the nursing services are participating in the development of the health plans in both Tucumán and San Juan Provinces. Paraguay and El Salvador, utilizing the experience of previous years, are establishing more realistic goals for their nursing activities within the national health plans.

Increasing emphasis was given to the improvement of the administration of nursing services in hospitals and in public health and integrated health programs, at all levels. In Honduras a plan for the reorganization of the nursing unit at the central level was prepared for implementation in 1967. A proposal was drawn up for the organization of a nursing unit at the state level in São Paulo, Brazil. Specific programs to improve nursing administration and organization in hospital institutions were carried out in Argentina (Mendoza, San Juan, and Tucumán Provinces), Cuba, the Dominican Republic, Ecuador, El Salvador, Nicaragua, Panama, Peru, and Trinidad and Tobago. There was variation in methods used as well as in the aspects emphasized, which ranged from general administration to such special topics as definition of philosophy and objectives, nursing personnel needs, job descriptions, manuals of procedure, equipment requirements, etc.

To plan for the improvement of nursing care, many countries took a solid step forward by first carrying out basic studies to obtain factual information. These studies, which varied widely in type and scope, included those on nursing needs and resources, in Barbados, Panama, St. Lucia, and Trinidad and Tobago; on utilization of nursing personnel in selected hospitals, in Cuba and El Salvador; on maternal and/or child care programs, in Ecuador, El Salvador, Honduras, and Nicaragua; on preparation of existing trained and untrained nursing aux-

TABLE 20. NURSING ADVISORY SERVICES PROVIDED BY THE ORGANIZATION IN 1966—DISTRIBUTION ACCORDING TO AREA OF ACTIVITY

Area of activity	Nursing advisers ^a		
	Within country		Inter-country
	Full-time	Short-term	Full-time
Over-all nursing.....	—	—	6
Health services.....	13	2	—
Hospital services.....	5	13	1
Midwifery.....	1	2	1
Nursing education.....	14	10	—
Training of auxiliaries.....	3	1	1
Rehabilitation nursing.....	—	1	—
Premature care.....	—	1	—
Introduction to nursing studies.....	—	1	—
Operating room.....	—	2	—
Intensive care.....	—	1	—
Total.....	36	34	9

— None.

^a Plus two Regional Advisers.



A group of nurses receives training at a hospital in Ecuador.

iliaries, in the Dominican Republic and Haiti; and on nursing personnel requirements in nine health centers, in Cuba. These activities will undoubtedly result in both improved administration and, eventually, more comprehensive planning to meet the nursing needs.

Programs for the training and supervision of traditional birth attendants within the maternal and child care services were either started or improved in Cuba, Costa Rica, the Dominican Republic, El Salvador, and Nicaragua. On the whole, however, improvement of the nursing aspects of the maternal and child care programs received little emphasis. Five short training programs in public health for midwives were held, four in Argentina and one in Uruguay.

For the improvement of psychiatric nursing services, advisory assistance was provided to programs in Peru and in Venezuela. The number of additional requests received, which will be filled in 1967, indicated the countries' growing awareness of the need for better nursing care for the mentally ill.

Improved nursing care cannot be achieved unless the nursing personnel recognize, and are competent to assume, the responsibilities involved in their job. The Organization therefore continued to promote the development of seminars, workshops, inservice and continuing education programs, and short courses to prepare both nurses and nursing auxiliaries for specific service needs. Information received from the countries indicated that 1,279 graduate nurses and 378 nursing auxiliaries attended these types of training programs in 1966. Details of the education and training activities in nursing are included in Chapter III of this *Report* (Education and Training).

A new approach was taken in 1966 for the improve-

ment of nursing service administration in hospitals; a total of 105 nurses from 37 institutions in Bolivia, Ecuador, El Salvador, Nicaragua, Panama, and Peru participated in these activities. They consist of a series of three workshops with an interval of three to four months between each. During the workshops each participant must select, on the basis of the content taught, a project that she will develop in her service. As she carries out the project, she is visited by the workshop consultant, who evaluates the progress made and advises on problems encountered. The method has proven very effective in having the theory applied in practice; moreover, the impact on the services is already being noted.

VETERINARY PUBLIC HEALTH

In line with the increasing importance placed by the Governments on programs for the control of zoonoses and on the improvement of the veterinary public health services responsible for carrying them out, the Organization continued to increase its cooperative efforts in this field. Through its specialized advisers and by means of the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center, it provided assistance to programs of veterinary medical education, zoonosis control, and food and drug control.

During the year assistance was provided to the veterinary public health services of the Central American countries and Panama, which expanded their activities in food and drug control programs and which now have 23 veterinarians devoted exclusively to public health work.

Under the sponsorship of the veterinary services of the United States of America, and with the cooperation of the Organization, the First Seminar for Military Veterinarians of the Americas was held in Fort Clayton, Canal Zone, in February 1966. This meeting, attended by experts from Argentina, Brazil, Colombia, Ecuador, Peru, the United States, Uruguay, and Venezuela, was concerned primarily with the role of the veterinarian in the prevention and control of zoonoses, the training of auxiliary staff, and the development of food hygiene programs.

The Second Seminar of Veterinary Public Health for Central America and Panama, organized by PAHO with the cooperation of the Ministry of Public Health and Social Welfare of Guatemala, was held in Guatemala City in November 1966. Attended by the heads of the veterinary public health and animal health services of each of those countries and by observers from FAO, the U.S. Public Health Service, and the Military Veterinary Ser-

vices of the Canal Zone, the Seminar discussed, among other subjects, the importance of rabies, brucellosis, animal tuberculosis, and cystocercosis in that region.

In Brazil assistance was given to the Ministries of Health of the States of São Paulo and Minas Gerais in the organization of veterinary public health services, which will soon be established. In Venezuela the Organization assisted in rabies control activities and, in cooperation with the Veterinary Research Center of the Ministry of Agriculture, conducted a course on the diagnosis of rabies with fluorescent antibody techniques.

Advisory services were rendered to the Government of Mexico in connection with the rabies control program for the cities along the United States border, which was begun in the month of August. Through its veterinary public health adviser, PAHO assisted in the rabies control campaigns of Brazil, Grenada, Peru, and Uruguay, and specific projects were established for cooperation in carrying them out. Through the Pan American Zoonoses Center, active assistance was provided in the national brucellosis control campaigns in Argentina and in Uruguay. At the request of the Government of Chile, collaboration was given in studies on leptospirosis in that country.

In the food hygiene field, PAHO took an active part in the organization and holding of the Second Seminar on Food and Drug Control for Central America and Panama, held in May in Panama City. Advisory services continued to be furnished to the Ministries of Health of those countries in the planning and organization of their food registration and control services. Through its veterinary public health advisers, the Organization cooperated in several national and international courses on food hygiene and technology held in Argentina, Chile, Guatemala, and Peru.

Within its veterinary public health activities in 1966, the Organization placed particular emphasis on professional training, especially preventive medicine and public health education, through short-term consultants and staff advisers. It extended its cooperative projects in this field to eight countries (Argentina, Brazil, Chile, Guatemala, Mexico, Peru, Uruguay, and Venezuela) where more than half of the Hemisphere's 64 schools of veterinary medicine are located.

PUBLIC HEALTH LABORATORIES

Because of their primary role in programs of preventive and curative medicine, environmental sanitation, and in the production of biological agents, public health labora-

tories are key elements in all national health plans. Recognizing this fact, the Governments of the Hemisphere have been steadily expanding their laboratory services and, accordingly, the Organization has received an increasing number of requests for technical assistance in the establishment of laboratories to meet the requirements of each country.

During the year the Organization continued to assist the Governments by providing fellowships for the training of specialized personnel and by assigning regular staff members and long- and short-term consultants to furnish technical advice in the planning and organization of central laboratories and in specific activities such as the production and control of biological products, the establishment of animal colonies, virological diagnosis laboratories, and new immunological techniques. Other services included the provision of biological reagents, reference services for the assay of vaccines, sponsoring of courses on bacteriological and serological techniques, and advice on the selection of laboratory equipment and methods.

In view of the obvious shortage of trained personnel in this field, the Organization gives much importance to helping the Governments close this gap. It does so by cooperating in national courses, organizing international courses, and granting fellowships for studies abroad. In 1966 it assisted with the courses offered in Argentina, Brazil, Jamaica, the United States of America, and Venezuela, which are described in greater detail in Chapter III of this *Report* (Education and Training).

To assist in improving the organization of laboratories, general advisory services were rendered to the following countries, at their request: Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Peru, and Venezuela.

In Argentina the Organization continued to assist the National Institute of Microbiology in Buenos Aires by providing advice, technical information, and equipment, including a complete new freeze-drying unit for the production of smallpox vaccine. The Institute did intensive work in the preparation of vaccines, sera, antigens, and biological reagents and cooperated with the national and provincial authorities in basic and epidemiological investigations during outbreaks of smallpox and jungle yellow fever.

In Brazil PAHO continued to make available the services of a consultant to assist in the establishment of a virological diagnosis laboratory at the Oswaldo Cruz Institute in Rio de Janeiro. The studies on enteric viruses were pursued, and the consultant cooperated in the isolation of cytopathological agents from patients showing paralysis in the States of Ceará, Guanabara, and Rio

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Grande do Norte. He also took part in the preparation of plans to conduct a pilot study to determine the effect of enteric interference in poliomyelitis vaccines administered orally in tropical climates. At the request of the Ministry of Health, 12 commercial lots of trivalent poliomyelitis vaccine were examined to determine their potency.

In Colombia the new building of the National Institute of Health is nearing completion. The Zone consultant helped the Colombian authorities to review the plans for the building. A long-term consultant assisted the Institute in the preparation of pertussis and diphtheria vaccine; between 15,000 and 20,000 doses a month were produced, and the goal is to raise the monthly output to 40,000 doses. The consultant also participated in the preparation of rabies vaccine from suckling mouse brain, a technique that will soon replace preparation from calf brain. Production of antirabies serum was also begun.

In Cuba, owing to the intensive programs under way for the control of communicable diseases, laboratory problems are a matter of grave concern to the Government. The regional consultant conducted a survey of the laboratory situation, and the Organization provided fellowships and assisted in the preparation of plans to develop laboratories for the production of vaccines and other biological substances.

In Ecuador the Department of Biological Production of the National Institute of Health was inaugurated on 14 July and most of its technical sections are now in operation. During the third quarter of the year the Institute received the equipment provided by the Organization, including, notably, devices for measuring the presence of radioactive substances in the air and in foods.

In El Salvador a short-term consultant conducted a study of the resources in the Ministry of Public Health and Social Welfare laboratories, including data on their distribution, utilization, and performance. In Rosales Hospital at San Salvador and in the Hospital at Santa Ana—the country's two largest hospitals—new serology techniques were introduced for syphilis, brucellosis, and Chagas' disease. At San Miguel Hospital plans were prepared for the installation of a new tuberculosis bacteriology laboratory to serve the eastern part of the country. The new installations in the Bromatology Laboratory of the National Department of Health were put into operation during the year.

In Guatemala, with the cooperation of the PAHO permanent adviser, the collection of information on the resources available in the laboratories of the National Department of Public Health was continued with a view to evaluating the services provided. In addition, a sterilization unit was installed in the central laboratory, and work

was begun on the preparation of a manual for local laboratories which will provide information on techniques and on materials and equipment required. The equipment for the production of diphtheria toxoid was installed, and two experimental batches were prepared. Between January and September the Biological Institute prepared and distributed the following quantities of vaccines:

<i>Vaccine</i>	<i>Prepared</i>	<i>Distributed</i>
Human rabies	254,240 cc	8,781 treatments
Canine rabies	10,985 cc	12,860 doses
Bovine rabies	2,660 doses	1,770 doses
Smallpox	39,184 cc	407,200 doses
Typhoid	138,000 cc	289,840 cc

In the same nine-month period 2,688 human rabies treatments, 90,000 doses of smallpox vaccine, and 198,000 cc of typhoid vaccine were distributed to neighboring countries.

In Haiti the project for the development of public health laboratories in Port-au-Prince was terminated in accordance with the terms of the corresponding agreement.

In Mexico activities for strengthening the laboratory services were greatly increased. The Organization is cooperating actively in these efforts by assisting the Government services in obtaining laboratory materials, equipment, and reagents. It also studied the bases for concluding an agreement with the Government to assist in expanding and modernizing the country's network of public health laboratories.

In Peru the project for the construction of a new building for the National Institute of Health continued to be examined. A feasibility study was begun with a view to submitting the project to the Inter-American Development Bank with an application for a loan to finance construction.

Following a detailed survey of laboratory resources and facilities in Venezuela, conducted by the regional adviser, the Government of Venezuela signed an agreement with the Organization for the development of its laboratory services.

In the English-speaking countries and territories of the Caribbean area, the study of existing laboratories, begun in 1965, was continued. A manual of laboratory techniques was prepared, reproduced (with the help of a PAHO grant), and distributed.

The Organization continued to offer the countries reference services for the assay of biological agents produced in their official laboratories. Unfortunately, as in previous years, these services were not utilized to the fullest extent: only 15 biological products were sent to the reference centers for testing.

To assist in the standardization of biological products,

the Organization continued to provide the national laboratories with cell lines for tissue cultures, biological reagents (antigens and reference antisera), strains of bacteria, viruses and fungi, and other standard preparations (vitamins and antibiotics). In 1966 the number of products distributed rose to 1,691 (compared with 1,454 in 1965), and they were sent to 12 countries.

During the year technical information and literature were sent to Argentina, Bolivia, Chile, Colombia, Cuba, El Salvador, Guatemala, Mexico, and Nicaragua.

HEALTH EDUCATION

With the appointment of a new Regional Adviser in Health Education, the Organization effectively expanded its assistance to the countries in this important field.

One of the new activities begun during the year was the compilation of an inventory of motion pictures on health subjects that are available in the Americas, with a view to preparing a catalog of these audiovisual tools for use in health education activities.

Assistance in health education work continued to be rendered in integrated health programs in the eastern Caribbean area and malaria eradication programs in Central America and Surinam, where community education has been a decisive factor in the success of these campaigns. In addition, work was continued to promote active participation by rural communities in the local financing and administration of public water supply facilities in Central America, Argentina, Chile, Peru, and Venezuela.

A workshop on health education was held in Montserrat in June 1966 to promote greater cooperation among teachers in the school health program, particularly those who give health instruction to schoolchildren. The workshop lasted 10 days and was attended by 40 elementary school teachers. Dominica received assistance in planning and holding a six-week course for district nurses, and in Barbados cooperation was given in an eight-week course for hospital nurses.

A medical adviser specializing in the health aspects of community development programs continued to collaborate with the Regional Fundamental Education Center for Community Development in Latin America (CREFAL) in Pátzcuaro, Michoacán State, Mexico. The Center held its fourteenth regular 30-week course from February to September, with 66 students attending from all countries of Latin America, except Nicaragua. The Center also offered a special six-week course (October-November) on nutri-

tion and community development, which was attended by 28 participants from 17 countries; 15 of them were key officials of national community development programs and 11 were program directors at the regional level. Another special five-day course sponsored jointly by the Center and the Administrative Committee of the Federal School Building Program (CAPFCE), in Michoacán State, was attended by 15 civil engineers and architects from CAPFCE, who studied the factors that have a bearing on the community development process and techniques for the construction of schools by the communities themselves. Under the auspices of the U.S. Agency for International Development, a special one-week course was held at the Center in October for Latin American government officials; it was attended by 32 participants from Brazil, Colombia, Guatemala, Mexico, Peru, and Venezuela.

The Organization rendered assistance in the holding of the XIII International Social Service Conference, which was organized in Washington, D.C. (4-10 September), by the Secretariat of the Conference, an agency affiliated with the United Nations Economic and Social Council. The meeting was attended by more than 1,000 delegates from 45 countries. Its Study Group on Health, composed of 60 delegates from 14 countries, examined the present status of health education in urban development programs.

Organization staff took part in the discussions of the Inter-American Red Cross Seminar on Youth and Health Education held in Quito, Ecuador, 27 October-4 November, under the auspices of the League of Red Cross Societies, and attended by delegates from 14 countries in the Hemisphere.

HEALTH STATISTICS

Strong impetus for the improvement of health statistics in the Americas was given by the recommendations adopted at the Technical Discussions during the XVI Meeting of the PAHO Directing Council (October 1965), at the Technical Discussions during the Nineteenth World Health Assembly (May 1966), and at the Fourth Meeting of the PAHO Regional Advisory Committee on Health Statistics (June 1966).

In the course of the year a strengthening of the statistical systems in the countries of the Hemisphere was observed. The Organization's programs for hospital statistics and for statistical education and training were expanded. Plans were drawn up and activities carried out for a number of research projects. The activities in the collection, tabulation, and analysis of vital and health statistics were continued, and a series of publications were

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prepared. Work progressed on the analysis of the findings and preparation of the final report of the Inter-American Investigation of Mortality, and preliminary work was done for the preparation of the Spanish and Portuguese versions of the Eighth Revision of the *International Classification of Diseases*.

Collection, Analysis, and Publication of Data

During 1966 information on the occurrence of quarantinable diseases in the Americas and on reported cases of other selected notifiable diseases continued to be published in the *Weekly Epidemiological Report*. Provisional figures for quarantinable diseases reported in 1966 are shown in Table 21.

Revised annual data on notifiable diseases for the year 1964 were compiled and published in the serial volume *Reported Cases of Notifiable Diseases in the Americas* (Scientific Publication PAHO 135), which was distributed in English and Spanish in June 1966.

Replies from the countries to the annual PAHO/WHO statistical questionnaires for 1964, together with the replies for the Third Report on the World Health Situation, were used as a basis for the report *Health Conditions in the Americas, 1961-1964* (Scientific Publication 138), presented to the XVII Pan American Sanitary Conference in September 1966, which included chapters on population and vital statistics, child mortality, communicable diseases, health services, hospital services, environmental

sanitation, and health manpower. In July 1966 the annual questionnaires requesting 1965 data on notifiable diseases, mortality by cause and age, vaccinations, and resources of hospitals and health manpower were distributed to the Governments and replies are currently being received and analyzed.

For the Fourth Annual Meetings of the Inter-American Economic and Social Council at the Ministerial and the Expert Levels (Buenos Aires, Argentina, March-April 1966), the Organization prepared the volume *Facts on Progress—Health Goals in the Charter of Punta del Este* (Miscellaneous Publication 81), which was based on questionnaires received from the countries and recorded the progress made toward reaching the 10-year objectives established in the Charter.

The report of the Technical Discussions held at the XVI Meeting of the PAHO Directing Council, on methods of improving vital and health statistics (Scientific Publication 128), was published early in 1966 and was used as a reference document for the Technical Discussions at the Ninetcenth World Health Assembly.

An analysis was begun of the data on medical care services of ministries of health and social security agencies, submitted by 10 countries for the Technical Discussions at the XVII Pan American Sanitary Conference. This information will be compiled for a full report to be published in 1967.

A report on "The Program of the Pan American Health Organization for the Development and Improvement of Medical Records" * was prepared for presentation at the First Regional Hospital Conference (International Hospital Federation), held in Bogotá, Colombia, 30 October-4 November 1966. For the same meeting a paper was prepared on "Modern Concepts in Hospital Statistics," † dealing with mechanization and the use of computers in hospital statistics systems in the various countries.

Regional Advisory Committee on Health Statistics

The objectives of the Fourth Meeting of the PAHO Regional Advisory Committee on Health Statistics (Washington, D.C., 6-10 June 1966) (Scientific Publication 139) were: (1) to review the recommendations of the Technical Discussions held at the Nineteenth World Health Assembly and at the PAHO Directing Council on the improvement of vital and health statistics, and to plan for their implementation; (2) to outline the program for the preparation of the Spanish and Portuguese editions of

TABLE 21. REPORTED CASES OF QUARANTINABLE DISEASES IN THE AMERICAS, 1966^a

Country	Jungle yellow fever	Small-pox	Plague	Louse-borne typhus	Louse-borne relapsing fever
Argentina.....	51	21	—	—	—
Bolivia.....	69	—	3	198	—
Brazil.....	22	3,039	48	—	—
Chile.....	—	—	—	6	—
Colombia.....	3	8	—	—	—
Ecuador.....	—	—	171	131	—
Mexico.....	—	—	—	75	—
Paraguay.....	—	5	—	—	—
Peru.....	10	13	669	45	1
United States of America.....	—	—	6 ^b	—	—
Venezuela.....	5	—	—	—	—
Total.....	160	3,086	897	455	1

— None.

^a Based on official records received at PASB through 5 June 1967.

^b Including 1 imported case.

* Published in Spanish in the *Boletín de la Oficina Sanitaria Panamericana*, Vol. LXIII, No. 6 (June 1967).

† *Ibid.*

the 1965 Revision of the *International Classification of Diseases*; and (3) to consider the status of mechanization and use of computers in health statistics in Latin America.

The Committee endorsed the recommendations of the Technical Discussions of the Directing Council with reference to the establishment of nation-wide systems of statistics on health resources, including health manpower, facilities, and services. It emphasized the need to study in each country the requirements for statistical personnel and their training, and in particular the training of civil registrars in order to improve the basic data. Experimentation with methods of establishing registration systems and estimating birth and death rates through surveys or sample registration areas in several countries was proposed. Specific recommendations were made on the preparation of materials to promote the dissemination and use of the Eighth Revision of the *International Classification*.

The Committee recommended that the Organization assist the national health services in introducing modern systems of data-processing, and especially in establishing basic prerequisites for the installation of a computer, including (1) a feasibility study to determine initial application, data requirements, and costs; (2) plans for simultaneous improvement of basic data; (3) training of staff to collect and transmit data for processing; and (4) plans for the full utilization of data from the computer. Also stressed was the need to provide coordinated advisory services for the entire system, from the source of the basic information to its correct utilization; for furnishing bibliography, program documentation, and teaching materials; for organizing conferences and seminars for various levels of personnel; and for establishing a center for training, development of systems applicable in several countries, and research and pilot operations for the development of methodology.

Latin American Center for Classification of Diseases

This Center, in Caracas, Venezuela, continued its advisory and training activities in Latin America. Courses on the *International Classification of Diseases* were given by staff members in Argentina and in Jamaica and teaching materials were provided for courses in other countries. As a preliminary step for the preparation of the Spanish and Portuguese editions of the 1965 Revision of the *International Classification*, a draft list of categories was prepared in each language for distribution to groups in the various countries for review of the terminology used. Preliminary plans were drawn up for the utilization of the

1965 Revision in Brazil, Portugal, and other Portuguese-speaking areas.

With the technical assistance of the Center, and by means of a grant from the Organization, work was completed on the Portuguese editions of the *International Classification of Diseases Adapted for Indexing of Hospital Records and Operation Classification* (Scientific Publication 126) translated by staff of the School of Hygiene and Public Health of the University of São Paulo, Brazil; and of Volume 2 (Alphabetical Index) of the Seventh Revision of the *International Classification*. Both were published in 1966 and will help improve the translation of the Eighth Revision of the *Classification*, which will be undertaken in 1967-1968.

Field Activities

To carry out the continent-wide program in health statistics a PAHO statistical consultant is assigned to each of the six Zone Offices. Advisers were also provided in five countries (Brazil, the Dominican Republic, Haiti, Jamaica, and Paraguay) to work with national or state health services in improving their programs. In Jamaica the adviser is developing the teaching of statistics for medical students, health officers, and statistical technicians at the Medical School of the University of the West Indies.

In addition, four consultants in medical records were assigned to provide advisory services in this important field: one in Argentina, to serve the countries of Zone VI and neighboring countries, and one in Trinidad and Tobago; two to coordinate Regional activities and serve the remaining countries.

Health services. The development of health planning activities has led to a demand for an ever-greater amount and variety of statistical data in all the countries of the Hemisphere. In a search for greater efficiency changes were made in the structure and functions of several national health statistics units, and in their relationship with other agencies engaged in the production of data.

In Argentina the 1967 budget approved for the National Department of Statistics of the Ministry of Public Health was increased. A plan was developed to strengthen and standardize the provincial statistical systems and to provide equipment for processing the data through a national system, using an electronic computer. In Tucumán and San Juan Provinces work proceeded on the collection and tabulation of data needed for national health planning.

The Ministry of Health in Barbados established a health statistics unit at the central level, coordinated with

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the Central Statistics Office, the Registrar General's Office, and Queen Elizabeth Hospital.

At the request of the Secretary of Health of the State of São Paulo, Brazil, a study was begun on the organization of a system of records and reports for health data required for the planning, administration, and evaluation of programs. In Chile a revision of the existing data-processing system to meet the needs for the national health program was under study. Plans were developed in Costa Rica to unify the various statistical activities of the health services.

In the Dominican Republic the national committee on vital and health statistics was organized with the title "Working Group for the Improvement and Dissemination of Vital and Health Statistics." It played a major role in bringing together statistical technicians in the country, in improving the coordination of their work, and in forming working groups to study better ways of collecting, tabulating, and analyzing data.

In Honduras, a system was established for weekly telegraphic reporting by each health unit of the number of immunizations and other available health data. The most noteworthy development in Jamaica was the operational study to use the services of senior health workers, including health inspectors, to obtain reliable vital and health statistics. The Health and Manpower Resources Committee in Jamaica undertook the analysis of hospital, laboratory, maternity, child health, and medical care service statistics. IBM tabulating equipment was installed in the Registrar General's Office to facilitate publication of data.

In Peru the activities of the Bureau of Census and Statistics and the Health Service in the field of vital and hospital statistics were coordinated under an official agreement that clarified the responsibilities of each of those departments. In Trinidad and Tobago the need for a health statistics service under the Ministry of Health was partially met by the proposed appointment of a Health Statistics Officer. In Venezuela the progress of the health statistics system under the Ministry of Health, as well as the performance of newly trained statistical personnel, was evaluated and plans for further training were formulated.

Vital statistics. Definite steps toward the improvement of registration and collection of data on births and deaths were taken by several countries during 1966. Under legislation adopted in Argentina the Ministry of Public Health, beginning in 1967, will be responsible for the processing of vital statistics, a function previously discharged by the National Bureau of Statistics.

In April 1966 a meeting on the improvement of civil registration, organized by the Inter-American Children's

Institute (OAS), was held in La Paz, Bolivia. It was attended by participants from Bolivia and Paraguay and from the international organizations concerned with registration, including PAHO.

In Chile, the National Committee on Vital and Health Statistics undertook the revision of the forms used by the National Health Service to collect data; among the changes introduced was the design of a new form for medical certification of deaths, which was tested in selected areas and will be put into use in 1967.

Trials were made in Cuba of methods of registration of births in hospitals and maternities in order to develop procedures for the whole country. It is expected that in the census planned for 1967 tests of the completeness of birth registration will be included. In the Dominican Republic the San Cristóbal registration area for births and deaths was organized and will periodically be evaluated. Trials of new certificates of deaths and fetal deaths are being made to improve the quality of information. In Haiti basic data were collected for the establishment of birth and death registration areas in June 1967, within the area of Arcahaie.

A Committee on Vital Events established in Paraguay conducted two surveys in the San Ignacio District on the completeness of registration of vital data in a population of 15,000. A new set of birth and death certificate forms was introduced to meet the needs of the health planning process, and legislation was proposed to modify the structure of the civil registration system, to be coordinated with the activities of the Department of Biostatistics of the Ministry of Health.

In Peru, two one-week courses were conducted for 30 district registrars in Puno and Cuzco Departments, under a collaborative project of the Ministry of Health, the Office of Civil Registration, the United Nations, and PAHO. The National Committee on Vital and Health Statistics undertook the revision of the death and birth certificates in an effort to improve registration.

The subject of vital and population statistics was included in the discussions at the Caribbean Commonwealth Government Statisticians Conference in Port-of-Spain, Trinidad, in June 1966. Methods of improving registration in countries or territories with less than 95 per cent registration were discussed.

Hospital statistics. During 1966 outstanding progress was made in hospital statistics as the result of the increased training of personnel for hospital medical record departments and the reorganization or establishment of record systems.

In Argentina procedures were established for handling medical records and organizing the statistics department

in government hospitals. The use of standard forms for collecting hospital statistics was extended to several provinces.

Personnel trained in statistics and records were added to the staff of Queen Elizabeth Hospital in Barbados, and also to new medical records departments in government hospitals of Antigua and St. Lucia. In Trinidad and Tobago the medical record and hospital statistics department of the Port-of-Spain General Hospital was reorganized as a first step in improving the administration.

In Haiti a PAHO short-term consultant studied the existing records systems and methods in the Port-au-Prince General Hospital and advised on their improvement. The hospital is intended to serve as a demonstration center where courses will be given to statistical auxiliaries.

The Department of Statistics of the National Health Service of El Salvador continued its study of new forms for collecting basic data in hospitals and health centers. The San Felipe Hospital in Tegucigalpa, Honduras, which has 889 beds, reorganized its filing system using the terminal digit method. The National Tuberculosis Sanatorium also improved and centralized its record system.

In Mexico a study was made of a new information system for recording and collecting data from health centers and hospitals and on health resources. A manual of procedures was in preparation, with the health services of the State of Hidalgo serving as a demonstration and experimental area.

In May 1966 a PAHO short-term consultant was assigned to assist the Ministry of Health of Venezuela with studies to evaluate the possibility of establishing in that country a central coordinated processing system for hospital statistics.

Health resources. As part of the continuing efforts to measure the human and material resources available for health services and their geographic distribution, in order to plan for efficient utilization and for expansion, several Governments conducted surveys or studies during 1966.

In Colombia the completed forms from the censuses of physicians and nurses for the Health Manpower Study are to be used as a basis for the establishment of continuing registers by the Colombian Association of Medical Schools and the Nursing Section of the Ministry of Health. Procedures for keeping the registers up-to-date were studied.

In the Dominican Republic a nation-wide survey on health resources was conducted and the data on hospitals and hospital beds were published. Statistics on physicians and other health personnel, equipment, and other facilities were tabulated.

In Haiti plans were prepared for a census on health

resources to be initiated early in 1967. Forms were designed and pretested, and instructions for personnel were drafted.

In Paraguay the data from the nation-wide census of hospitals and other health units, completed in 1965, were published in 1966.

Electronic data-processing. For the Fourth Meeting of the Regional Advisory Committee on Health Statistics (June 1966) the Organization conducted a survey on the availability and use of computers in the field of health statistics. In Argentina, Brazil, Costa Rica, Guatemala, Jamaica, Mexico, Panama, and the United States of America computers were already being used for the processing of health information. Other countries were in an advanced stage of planning for the installation of computers.

Consultant services were provided to Argentina and Chile to develop plans for the utilization of computers in the health services. In Argentina a study was made of the subject areas in which a computer could profitably be used, the time and personnel requirements, and the training needs. Structure of the data-processing unit was discussed and plans were developed for preparing for the introduction of a computer late in 1967. Advisory services will be continued in order to have the systems developed and personnel trained by that time.

In Chile the proposed electronic data-processing system for the National Health Service was reviewed and recommendations were made.

The education and training activities in the field of health statistics are reported in Chapter III, and those related to research, in Chapter V.

ADMINISTRATIVE METHODS AND PRACTICES

Improvements continued to be made in the administrative methods and practices of the health establishments in the Hemisphere, an activity in which the Organization collaborates through the provision of advisory services and the sponsoring of seminars and training programs for administrative staff.

To assist the Governments of the Caribbean area, two consultants specialized in fiscal and personnel management were appointed early in the year, in addition to the administrative methods officer assigned in 1965. Arrangements were completed late in 1966 for the appointment of an additional consultant specialized in supply management. The consultants devoted most of their efforts to assisting the Government of Trinidad and Tobago in the

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reorganization of its services for health planning and in improvement of all phases of administration.

In the Dominican Republic advisory services continued to be given by a consultant who assisted in improving the organization and administration of the Ministry of Health and Social Welfare, and by another assigned to collaborate in the administrative operations of the National Malaria Eradication Service.

The health ministries of the countries of Zone III were furnished with administrative advisory services, as the need arose, by the administrative methods consultant assigned to malaria eradication programs and water supply projects in the Zone.

The consultant in Zone IV devoted most of his efforts to assisting the Ministry of Public Health and Social Welfare of Peru, principally in the areas of organization, personnel administration, and records management. In Colombia he and a short-term consultant gave advice on the reorganization of the personnel system of the Institute for Municipal Development.

In Brazil collaboration in administrative methods and practices was provided to the Malaria Eradication Campaign by three consultants. Two were specialists in transport management, who also gave advice to health ministries in other countries, as the need arose.

The Zone VI consultant, with the aid of a short-term consultant, collaborated with the Ministry of Public Health of Argentina in the reorganization of the administrative services, especially as regards personnel management. He also gave advisory services in Paraguay in connection with the implementation of a system of program budgeting.

Late in the year a consultant was assigned to Chile to assist in strengthening the administrative services in the National Health Service, principally in the areas of personnel and supply management.

Arrangements were made for the next Seminar on Organization and Administration of Health Services to be held in 1967 for the countries of South America; the main theme will be program budgeting. Plans were also made to hold similar Seminars in 1967 for the English-speaking areas of the Caribbean and for Central America and Panama, the first devoted largely to physical facilities

for health services, and the second to supply management.

The Organization's collaboration in the training of administrative personnel is described in detail in Chapter III of this *Report* (Education and Training).

EVALUATION

In 1966, the fact that a section on evaluation was included in the routine reports that are prepared, under the terms of the respective agreements, on all projects carried out with advisory assistance from PAHO/WHO, made it possible to arrive at a more comprehensive and reliable comparison and appraisal of the results achieved. The system adopted—which consists in defining annual targets according to each country's technical standards and available resources and comparing them twice a year with the actual achievements of each period—was put into effect for 189 (65 per cent) of the 293 projects where its use had been planned. Honduras and Nicaragua used the information on the general health services projects to evaluate their national programs and restate their goals and objectives. With the aid of the system and the quantitative data available for measuring results, objective conclusions could be reached as to the reasons for the greater or lesser success achieved in carrying out the activities, thereby enabling the authorities to take the appropriate steps in each specific situation.

In Chapter VIII of this *Report* some tables have been included, on an experimental basis, showing the figures for specific work carried out in certain projects, which make it possible to identify the activities or technical standards, the targets set at the beginning of the year, and the percentage of accomplishment of the targets set.

The large volume and variety of data to be processed through this evaluation system, together with the narrative reports, exceeds the capacity of manual analysis. The number of data to be processed in 1966 was estimated at about 40,000, and PAHO/WHO therefore continued to study the advisability of computers. To that end it compiled a classified list of activities that can be quantified sufficiently well to permit electronic analysis and interpretation.

B. SPECIFIC PROGRAMS

MEDICAL CARE ADMINISTRATION

In order to strengthen the Organization's activities in this field, the Medical Care Unit at the Washington Office was reorganized toward the end of the year and became the Medical Care Administration Branch. Its activities are directed toward five main areas, in accordance with the recommendations of the Governing Bodies:

- (a) coordination of medical care services of the ministries of health with those of social security institutions and other public or private agencies;
- (b) planning and administration of hospitals and other health establishments;
- (c) education and training of personnel in medical care administration;
- (d) organization of operational research and exchange of information; and
- (e) organization of services and training of personnel in physical medicine and rehabilitation.

Coordination of medical care services. In view of the need to improve the use of available resources, the coordination of medical care services of the health ministries with those of social security institutions and of private philanthropic organizations is regarded as an essential step toward comprehensive health planning.

During the year a joint program was conducted with the Organization of American States, in which a survey was made in 10 Latin American countries (Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Panama, Peru, and Venezuela) to determine the availability of medical care services, their costs, and how they are utilized, both in the ministries and in the social security institutions. This survey represented a first attempt to initiate operational research in health economics. The results served as a basis for the Technical Discussions held at the XVII Pan American Sanitary Conference (Washington, D.C., September-October 1966), which dealt with this topic, and they are being analyzed for publication in 1967.

The efforts of the OAS and PAHO were also directed to enlisting the support of the various organizations of the Inter-American System by having their Governing Bodies adopt resolutions in favor of comprehensive health planning at the national level, with the participation of all governmental, semiautonomous, and private agencies maintaining or financing health services.

The Inter-American Economic and Social Council (IA-

ECOSOC), at its Fourth Annual Meeting at the Ministerial Level (Buenos Aires, Argentina, April-May 1966), adopted Resolution 12-M/66, "Social Security within the Framework of the Alliance for Progress," and Resolution 13-M/66, "Health and Development Planning." In substance these resolutions recommend to the Governments "that the social security plans and programs for medical services be improved and coordinated with development plans, and particularly with the health plans in each country," and that the Governments "incorporate activities relating to the prevention and cure of diseases in the development efforts, particularly in the land settlement, city planning, and industrial development programs. . . ."

The Organization was represented at this IA-ECOSOC meeting and also at the XII Meeting of the Permanent Inter-American Committee on Social Security (San José, Costa Rica, April 1966), the IX Congress of Social Medicine of the Pan American Medical Confederation (Lima, Peru, April 1966), and the VIII Conference of American States Members of the International Labour Organisation (Ottawa, Canada, September 1966).

At these meetings the representatives of the OAS and of PAHO worked together to obtain the adoption of various decisions on medical care, the combined effect of which is to establish a uniform policy—accepted by all the interested groups—to the effect that the medical care services of social security institutions ought to participate fully in the comprehensive health planning of the countries of the Americas, since that is the only way to provide a solid foundation for the efficient administration and proper utilization of medical services in the future.

The XVII Pan American Sanitary Conference took cognizance of the resolutions adopted at these meetings and, after confirming the medical care policy formulated by the Director of the Pan American Sanitary Bureau, recommended to the Governments "that both health institutions and social security institutions take part in studies for the formulation of national health plans" (Resolution XXIII). In a resolution concerning the Technical Discussions on this matter, the Conference emphasized "the importance of coordinating all resources in order to achieve a better return from the medical care programs sponsored by various public and private institutions" and noted "that some countries have already integrated or are in the process of integrating their medical services in the ministries of health" (Resolution XXXVII).

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Planning of hospitals and other health establishments. In the course of the year the Organization initiated discussions on this matter with the Inter-American Development Bank, to which it submitted general criteria for defining priorities at the various levels of hospital systems. The joint IDB-PAHO mission that visited Honduras in July 1966 established a valuable precedent for the ultimate adoption of suitable criteria and procedures in establishing the medical care needs of each country.

As a result of direct advisory services to various countries, including Argentina, Barbados, Brazil, El Salvador, and Trinidad and Tobago, PAHO acquired experience that enabled it to formulate certain principles and administrative standards for medical care, which may be summarized as follows:

(a) Maximum utilization of available resources is the first objective and basic requirement of any project for the planning of medical care services.

(b) Technical integration of medical care services for prevention, cure, and rehabilitation makes them one of the basic health services and necessitates the coordinated use of available resources and the coordinated planning of any future expansion.

(c) In planning hospitals and similar institutions, proper care should be taken to adopt national and/or regional health systems that will make it possible to achieve the essential coordination and cooperation among the various agencies of the public sector and to offer services adequate in quality and quantity to meet the demand.

(d) University or teaching hospitals should have high priority in construction programs, since they are a key element in the preparation of health personnel and, at the same time, in providing the community with high-quality services.

(e) The organization of a system of peripheral facilities to provide suburban communities, and particularly rural communities, with integrated health services, is the essential complement of the teaching hospital, since it enables it to extend its services to communities far removed from the urban centers and, at the same time, to acquire an invaluable new field for the teaching of social medicine.

During the year PAHO initiated studies on the functional and architectural planning of general hospitals as components of a national or regional health system. The results of the studies are scheduled for publication in 1967.

PAHO cooperated in the Spanish translation of the manual *Hospital Planning and Administration*, which the WHO prepared for publication in its Monograph Series (No. 54). The English edition appeared in 1966, and the

Spanish version is scheduled for distribution at a later date.

Teaching of medical care administration. The Organization took part in a meeting of the Association of University Programs in Hospital Administration (AUPHA), held in Bogotá, Colombia (August 1966), which discussed all the courses now offered in Latin America on this subject. The meeting was a first move toward the establishment of a system for interchanging experience with a view to coordinating, to the extent possible, the academic program, admission requirements, and training needs in this field.

The basic elements of a policy on the training of high-level personnel for the administration of medical care services were laid before the First Regional Hospital Conference (Bogotá, October-November 1966), organized by the International Hospital Federation with the cooperation of the Ministry of Public Health of Colombia, the Colombian Hospital Association, the Central Military Hospital of Bogotá, and the Organization. The meeting was attended by 375 persons from 19 countries.

The papers presented to the Conference* dealt with the following subjects: the functional program of the hospital; hospital statistics and records; training of administrators for hospitals and health programs; hospital nursing services; and hospital engineering. A dominant theme in these papers was the need to train not only hospital administration staff in the traditional sense, but also specialists in various disciplines to make up the administrative team that participates in the whole of the activities of a hospital.

Plans were made for a Symposium on the Teaching of Medical Care Administration, to be held in Medellín, Colombia, 30 July-5 August 1967, under the auspices of PAHO.

The Organization is assisting the Inter-American Center for Social Security Studies (CIESS) and the OAS in the training of administrators for social security medical services. In September 1966 a series of five lectures on questions of medical care administration were given as part of the course organized by the Center in Mexico City.

Information and Reference Center. This Center was organized at the PAHO Headquarters in August 1966 to foster the exchange of information on medical care and hospital services in the Hemisphere. During the year the Center began the following activities: organization of records, both by area of activity and by countries; compilation of a list of persons actively interested in medical

* Published in Spanish in the *Boletín de la Oficina Sanitaria Panamericana*, Vol. LXII, Nos. 5-6 (May-June 1967) and Vol. LXIII, No. 1 (July 1967).

care, hospital planning, and other health services; and provision of information at the request of organizations and individuals.

The publication of an information bulletin on medical care activities in the Hemisphere will begin early in 1967.

Rehabilitation. The concept of rehabilitation, which originally encompassed the use of physical methods to alleviate locomotor problems, has gradually been broadened to include the prevention or diminution of all forms of physical or mental disability and any activity that may assist a potentially handicapped person to retain or restore the maximum of independence.

The degree to which such independence is possible depends on many factors—gravity of the patient's illness or injury, his education and personality before his disability, environment in which he lives—but successful rehabilitation depends universally on two basic factors: the availability of good medical care from the earliest possible moment, and the recognition by society that physical or mental alterations from what are commonly accepted as the norm do not of necessity lessen the disabled person's ability to live a satisfactory life. It is gradually becoming an accepted idea that it is the responsibility of medical and social care to ensure that such persons are not a burden to themselves, to their families, or to their communities.

In 1966 the Organization received an increasing number of inquiries from the countries for information or assistance in many aspects of rehabilitation work, including mental problems, speech and hearing defects, and the use of electronic devices for the assessment of vocational abilities. However, there are still many areas in which the lack of simple good medical assistance may cause an injured patient to become a lifetime cripple and, in view of the limited resources, it is to these cases to which priority is directed. During the year PAHO continued to

provide consultant service and assistance to four rehabilitation projects: in Brazil, to the Department of Occupational Therapy of the Institute of Rehabilitation of the University of São Paulo, and in courses for training in orthopedic brace-making (Brazil-4801 and 4802); in Chile, to the Pilot Center for Total Rehabilitation, in Santiago, which continued to provide services and to act as a teaching center (Chile-4801); and in Venezuela, where training continued at the School of Physiotherapy, at the Central University in Caracas. An agreement was signed for a fifth project in Argentina, the activities of which will be started in 1967 (Argentina-4801). The detailed activities of these projects are reported in Chapter VIII of this *Report*.

PAHO continued to maintain consultation with other international agencies dealing with various aspects of rehabilitation, especially the International Labour Organization, which carried out programs of vocational training as well as vocational surveys in several countries of Latin America in 1966. Communication was also established with the British Ministry of Overseas Development, which provided advisory assistance in occupational therapy to the Chilean National Health Service during the year.

MATERNAL AND CHILD HEALTH

A very high proportion of the activities of general health services projects supported and assisted by the Organization were devoted to the health care of mothers and children. The general planning, expansion, and administrative strengthening that occurred within these projects, and the integration of preventive and curative activities described in other sections of this *Report* on Planning, General Health Services, and Medical Care, were of direct importance to maternal and child health. Many of the service and training activities in nutrition (such as the expansion of nutrition rehabilitation centers), nursing (preparation of personnel at all levels), and communicable disease control (measles and poliomyelitis immunization) were equally relevant to mothers and children. Some selected examples of other types of activities specifically related to the health of mothers and children but undertaken as part of national efforts to strengthen and expand health services in general in 1966 were: a series of health courses for teachers (Bolivia); the completion of a new national pediatric hospital (El Salvador); total revision of norms and programs for child health (Honduras); further cementing of university relationships to national health service activities (Panama); creation of a new national and child health divi-



A patient is interviewed by the social worker at a rehabilitation center in Santiago, Chile.



Midwives receive training in a class organized in Barbados.

sion at the ministerial level (Ecuador); fusion of preventive medicine and pediatric teaching for medical students (Chile); upgrading of premature infant care units (Argentina).

For some years the Organization has given special attention to maternity nursing and nursing midwifery, and these efforts are beginning to meet with success. In 1966 there were numerous examples of nursing and midwife training and interchange.

An increasing number of midwives received regular nursing training in nursing schools and more graduate nurses received training in midwifery schools. In Brazil six schools of nursing offered combined courses to prepare nurse-midwives. Five special short courses for midwives (Argentina and Paraguay) were carried out and numerous shorter educational sessions were held in these and other countries. At least seven countries (Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Haiti, and Nicaragua) carried on educational activities for traditional birth attendants. For some years the Organization has endeavored to establish an International Training Center for Latin American midwives, to provide selected graduate midwives with the nursing, supervisory, and pediatric skills they need. At this time there is every reason to believe that such a Center can be inaugurated in Brazil during the coming year under the sponsorship of the Government, with the cooperation of PAHO.

A five-year evaluative report summarizing the regional program goals and achievements in maternal and child health care was prepared and distributed, and was supplemented by an intensive country study (Colombia).

During the year two publications were prepared and distributed widely in the Americas: *A Health Care Program for Mothers and Children*, issued in English and Spanish (Scientific Publication PAHO 130), which set forth guidelines for the development of national programs as a part of general health services programs integrating preventive and curative activities; and the adapted

Spanish translation of the handbook *Child Health in the Tropics* (Scientific Publication PAHO 133), intended for use by nursing and nursing auxiliary personnel. (See also Chapter III, Education and Training.)

NUTRITION

Cooperation with national health agencies was considerably expanded during 1966 with the appointment of new consultants, the reinforcement of the advisory services of the Institute of Nutrition of Central America and Panama (INCAP), and the completion of plans for the establishment of the Caribbean Food and Nutrition Institute. The Organization appointed three additional medical nutritionists, and a public health medical officer was assigned to INCAP with responsibility for nutrition advisory services to Zone III and the member countries of INCAP.

The Caribbean Food and Nutrition Institute, to be established under the joint auspices of PAHO and FAO, will be located in Kingston, Jamaica. Its objective will be to serve as a center for the training of personnel engaged in nutrition and food activities in the Caribbean area. Preparations for establishing the Institute were continued throughout 1966. A Director was appointed by PAHO and arrangements were made for him to assume his duties in January 1967.

In the Organization's activities, emphasis continued to be given to the need for the formulation of a practical food and nutrition policy at the national level, and for the planning of nutrition programs and projects within the general framework of the national health plan. Nutrition activities at the level of the local health services were expanded within the broad concept of applied nutrition programs, which have as their objective the application of nutrition knowledge to community-centered projects and activities. The latter include the nutrition rehabilitation centers, activities in health centers, and the coordinated projects within individual countries jointly sponsored by PAHO/WHO, FAO, and UNICEF.

Nutrition Rehabilitation Centers

The nutrition rehabilitation center was increasingly recognized as an effective and inexpensive means of rehabilitating the malnourished child as well as providing practical education for the mother. Functioning as a day-care center for children suffering from protein-calorie malnutrition, it provides them with a well-balanced diet

based on local foods, prepared and served by the mothers. Operational expenses are kept low, and in most places the center functions as a service within the health center, under the supervision of the latter's personnel. These rehabilitation centers provide an answer to the difficult problem of how to reach the malnourished preschool child and ensure a satisfactory coverage of the population in the area in which they operate.

Seven countries (Colombia, Costa Rica, El Salvador, Guatemala, Haiti, Peru, and Venezuela) now have such centers and more are requesting the Organization's assistance for the establishment of similar programs.

Applied Nutrition Programs

During 1966, 10 applied nutrition programs in 16 countries progressed satisfactorily. One of the programs (Cuba) was started during the year; agreements for two others (Colombia and Costa Rica) were extended.

For the purpose of studying the effectiveness of these programs, the Seminar on the Evaluation and Planning of Applied Nutrition Programs was jointly organized by PAHO/WHO and FAO in Popayán, Colombia, in November 1966. It was attended by participants from the 16 countries conducting these programs, including those responsible for the program direction in the ministries of health, of education, and of agriculture.

Prior to the meeting 13 countries made an evaluation

of their programs, using the protocol developed by the PAHO/FAO Working Conference on the Evaluation of Applied Nutrition Programs, which met in Washington in December 1965.

The evaluations pointed up several significant factors in the development of these programs. In those countries where there was close coordination between the workers of the three ministries involved, there was a better understanding of the program objectives. The countries that assigned the responsibility for the program development to well-qualified nutrition personnel demonstrated more evidence of achieving concrete results, than those whose staff possessed less training and experience. Numerous difficulties encountered in carrying out the programs could be attributed primarily to the following factors: deficiencies in planning at the time projects were initiated; inadequacies in the provision of equipment, facilities, and funds required to ensure consistent supervision; and variability in the interest and support afforded by government agencies and in the amount and trend of advisory services provided by the international agencies sponsoring the projects.

As a result of the analysis of these self-evaluations made by the countries, it was possible during the Seminar in Popayán to prepare guidelines that can be used for planning and evaluating new programs and reorienting current ones.

Research

INCAP continued to carry out research in protein-calorie malnutrition as related to public health and on a number of other subjects (for details, see the full report on INCAP, p. 64).

Investigations were continued for the modification and improvement of Incaarina-type foods and the improvement of cereal food crops. PAHO field staff participated in clinical and acceptability testing of protein-rich foods in Brazil, Haiti, Peru, and Trinidad and Tobago.

Operational research, principally aimed at evaluating the functioning of nutrition rehabilitation centers, was conducted in Colombia, Guatemala, and Haiti, and plans were made for similar studies in Peru.

Other research activities in the nutrition field included the PAHO Collaborative Study on Endemic Goiter and Cretinism, the joint PAHO/WHO Collaborative Study on Nutritional Anemias, and studies on vitamin A deficiency; these are described in Chapter V of this *Report* (Research).

As a means of strengthening nutrition research in Latin America, the Organization provided assistance to the



A group of Paraguayan teachers attend cookery classes as part of the campaign against malnutrition, caused in part by people not appreciating nutritive values.

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recently created Latin American Nutrition Society and to its quarterly journal *Archivos Latinoamericanos de Nutrición* (formerly published as the *Revista Venezolana de Nutrición*), the first issue of which was published in December.

The education and training activities in the field of nutrition are included in the report of INCAP, as well as in Chapter III (Education and Training).

Institute of Nutrition of Central America and Panama

During the year the Institute increased its assistance to the member countries to help improve nutritional levels among the population of the area, by such means as nutrition surveys, applied nutrition programs, education and training, research, and publications.

Programs in the Member Countries

Nutrition surveys. Much of the Institute's effort in 1966 was devoted to the nutrition surveys being conducted in the member countries, in cooperation with the Governments concerned and the Office of International Research of the U.S. National Institutes of Health. The surveys in El Salvador and Guatemala were completed in 1965, and the following year was devoted to those in Costa Rica, Honduras, and Nicaragua, each covering 30 rural communities. The purpose of the surveys, which collect information on nutritional levels throughout the country and on the factors influencing them, is to lay a suitable foundation for the planning and subsequent evaluation of nutrition programs. When each survey was completed, a preliminary report summarizing the findings was prepared. The final reports will be submitted to each Government as they become available.

Applied nutrition programs. Despite the heavy concentration of its resources on nutrition surveys, the Institute continued to provide the member countries with as much advisory service as possible in their applied nutrition programs, which are proceeding satisfactorily, especially in Costa Rica and Panama.

The Seminar on Applied Nutrition Programs held in November in Popayán, Colombia, should furnish useful guidelines for the more efficient conduct of these programs.

Noteworthy progress was made in Costa Rica in meeting the needs of undernourished preschool-age children. The number of centers providing this group with supplementary meals increased to 100.

In Guatemala the number of education and nutrition rehabilitation services for undernourished children, which operate as part of the health centers in selected areas, rose to 12. These services, which have achieved highly effective results both in the rehabilitation of the children and in the nutrition education of families, receive support from private agencies and regularly care for some 1,000 children.

Inclusion of nutrition studies in school curricula. In this area of activity, the first draft was completed of a nutrition textbook to be used in the nursing schools of Latin America, a project begun some years ago with the financial support of the W. K. Kellogg Foundation.

Of particular interest in this field was the resolution adopted by the IV Regular Meeting of the Cultural and Educational Council of the Organization of Central American States (ODECA), held in San Salvador, El Salvador, in July, which approved the inclusion of nutrition instruction in the curricula of primary and secondary schools. The Institute has made available to its member countries a textbook for use by teachers and students in teachers' training colleges. The book will be revised by the nutritionists of each country to adapt it to local conditions. The Government of Costa Rica, with the assistance of UNICEF, printed the textbook and distributed copies to the teachers' training colleges in the country, which are using it in their nutrition courses. Guatemala, Nicaragua, and Panama are planning to reproduce and use the book in the near future.

Survey of manpower available for education in nutrition. In order to evaluate the work in nutrition education that is being done by INCAP in cooperation with its member countries, an area-wide survey was made to determine the general academic background, knowledge of nutrition, and related qualifications of the personnel of health, education, and agricultural extension services. The survey was conducted through interviews and the sending of questionnaires to 335 physicians, 494 nurses, and 1,257 nursing auxiliaries of public health services, as well as to 7 directors of agricultural extension agencies, 10 supervisors and 105 home educators, and 576 primary and secondary school inspectors.

Commercial distribution of Incaparina. In 1966 sales of this product (Figure 9) amounted to 4,662,000 pounds, almost 40 per cent more than in 1965. Brazil, Panama, and Venezuela acquired 82,000 pounds for marketing on an experimental basis. The rest of the output was purchased by consumers in Colombia and Guatemala, where sales increased by 57 and 20 per cent, respectively. Demand in Guatemala has reached a volume that ensures the commercial success of the product, and Colombia

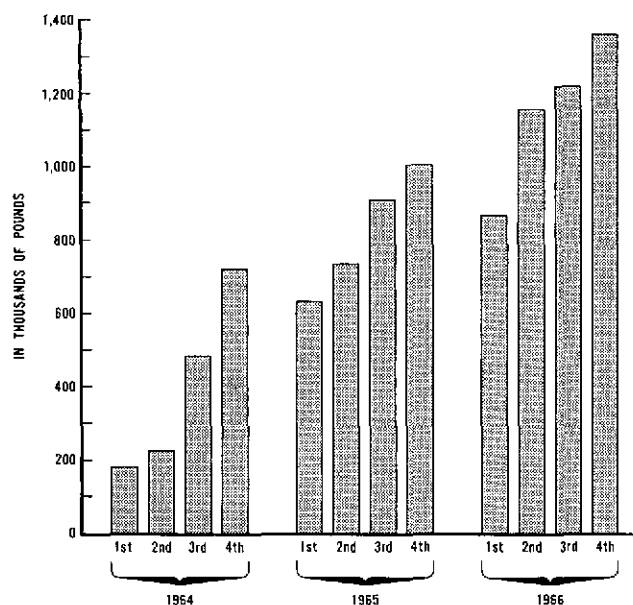


FIG. 9. QUARTERLY SALES OF INCAPARINA, 1964-1966.

seems to be close to attaining that goal. This was achieved by keeping the price at the lowest possible level.

Experimental distribution to determine the acceptability of Incaparina was completed in Costa Rica, El Salvador, Honduras, and Nicaragua. It was concluded that, in spite of varying nutritional patterns, the product has a substantial potential market in those countries. In Brazil and Panama the acceptability tests were concluded and market surveys initiated.

In cooperation with various food processors, consideration was given to the possibility of exploring new markets both in Latin America and in Africa.

Improvement of Incaparina. The Institute has developed an economically feasible process of enriching Incaparina with synthetic amino acids, which places the nutritional value of the protein contained in the Guatemalan product on an equal footing with that of the protein content of casein. The manufacturer in Guatemala accepted the proposal of INCAP to enrich the product with lysin without raising the price to the public, which is one fifth of a quetzal per pound, equivalent to US\$0.20. Producers in other countries are considering a similar enrichment of the product with appropriate, low-cost, synthetic amino acids.

As for the changes designed to improve the acceptability of the product, a formula based on roasted corn, instead of cooked cornmeal, was developed in Panama. In Brazil a type of Incaparina in the form of flakes was developed and is now being tested for its market possibilities. The initial results suggest that the product thus

prepared will be better received in Brazil than the type sold in Colombia and Guatemala.

Research

The availability of sufficient good quality food to satisfy the minimum needs of the population is one of the principal concerns of the Institute.

Research was continued on the use of improved varieties of corn in order to correct, through genetic changes, the deficiencies in the nutritional value of its proteins. Using the varieties thus improved, *tortillas* were prepared by the method traditionally employed in Guatemala, and it was found that the *tortillas* prepared in this way retained the organoleptic characteristics acceptable to the inhabitants of the area.

In experiments with rats, it was shown that the protein efficiency level of the new varieties is 90 to 95 per cent as high as that of casein. In experiments with two groups of young hogs, one of which was fed the local varieties of corn and the other improved varieties, the animals in the former group lost weight and showed a high mortality rate, whereas all those in the latter group survived and increased in weight.

Studies of nitrogen balance in preschool children showed that the proteins of the improved varieties, at adequate levels of consumption, had a comparable nutritional value to that of milk protein.

It was shown that if the genetic characteristics of the new varieties of corn can be imparted to the varieties commonly grown in Central America, the protein intake of the population can be improved considerably. The Institute is encouraging the agricultural agencies involved and is cooperating with them in this work.

The necessary studies were continued for the completion of the "Table of Composition and Nutritional Value of Feeds and Fodder for Central America and Panama." The necessary chemical analyses were made and the data are being compiled; it is expected that the Table will be completed in 1967.

In cooperation with the Government of Costa Rica a study was started to develop formulas, based on local, low-cost products, that can be used in place of milk in the feeding of calves, which will make it possible to utilize a larger proportion of the cows' milk for human nutrition. Various formulas that are adequate from the nutritional standpoint were developed, and additional studies are being made to determine which of them offer the greatest practical advantages.

Research continued on the development of new formulas and preparations based on low-cost mixtures of vegetables

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INCAP staff make a house visit as part of a field experiment in a Guatemalan village.

of high nutritional value available in the region. Various ways of preparing these products—including beverages with different flavors, sweet-testing pastes for spreading on bread, and others—were also studied.

The last few years have seen the development in more-advanced countries of food products based on proteins extracted from vegetable which simulate preparations of animal origin as far as their texture, taste, and other organoleptic characteristics are concerned. From the economic point of view, these foods are beyond the reach of the bulk of the population in developing countries, but they are a promising source of high-value food for the future. In this respect, a ground beef substitute prepared with soybean protein was tested on dogs and on groups of children and was found to be acceptable, as well as having an adequate nutritional value, similar to that of animal products.

One of the studies to which INCAP has given particular attention is that concerning the influence of environmental factors, particularly biological factors, on the host, with special regard to their effect on the utilization of nutrients. These studies, mostly of a longitudinal type, consist in observing the manner in which the host organism is colonized by viruses, bacteria, and parasites; in determining whether or not the colonization is associated with a disease; and in analyzing the effect that the infection and the disease have on the development and growth of children. The investigation entered its third year and is being carried out in a village in the highlands of Guatemala where a group of children have been carefully studied from birth by means of frequent clinical, anthropometric, dietary, and microbiological examinations. Analysis of the findings showed a significant correlation between diet, disease, and growth. Studies were initiated on the com-

ponents of the intestinal microbiota in rural children, both in the hospitals and in the natural environment, and it was found that those hospitalized, who were given a rich nutritional diet, have a different intestinal flora from that of children of the same ethnic and sociocultural group who receive a diet deficient in protein and calories.

In research concerning the effect of chronic subclinical malnutrition on mental development—a project undertaken jointly with the Institute of Child Health and Human Development of the U.S. National Institutes of Health—an experimental design was established for a longitudinal study to be started in 1967. The methods to be used to determine the nutritional conditions of the different population groups were tested, as were the epidemiological control methods.

The Institute continued its research to determine the effects of chronic subclinical malnutrition on the working capacity and productivity of adults. The preliminary data obtained from tests with 25 soldiers of the Guatemalan Army indicated that the subjects adapted efficiently to the reduced intake of food, since their body weight remained normal, and their reactions to physical exercise suggested that they were using less energy than that used for comparable work by individuals regarded as well-nourished in developed populations.

In order to ascertain the average utilization of calories by persons doing farm work under normal conditions, a survey is being made in a selected rural group in Guatemala that has been consuming Incaparina for a year and a half. Later a similar group that has not been receiving this food supplement will be studied for control purposes.

Tests also continued in the countries of the area to determine physical capacity for strenuous exercise over short periods by using the "Harvard step" test. The findings are still being analyzed, but it appears likely that they will corroborate a high degree of efficiency in the physical work carried out.

During the year INCAP also continued its research on the characteristics and physiopathology of anemia in cases of serious protein and calorie deficiencies, and on the intestinal functions of undernourished children.

The initial work to determine the interrelation between infections and nutrition in hospitalized children was completed, and showed that serious virus infections such as measles have a certain effect on protein metabolism that causes a loss of nitrogen beyond that of labile protein estimated for the patients. In general children of lower biological age were found to be more seriously affected by an infection than those of higher biological age. The nitrogen loss caused by the infection is less when the child's nutritional state was poor to begin with, and even

less if he was fed a high protein diet during the period of the infection.

Training

The School of Nutrition and Dietetics of INCAP inaugurated a four-year course for the training of nutritionists and dietitians in the area. Of the 21 students who enrolled in January 1966, 17 completed the first academic year. Approximately three students from each INCAP member country will enter the course each year, and it is hoped that this will help meet the urgent need for trained professional personnel in this field.

The fourth 11-month specialized course in applied nutrition for Latin American dietitians, completed in August, was attended by nine professionals. The fifth course, which began in September, is being attended by 12 students from various countries of the Americas.

The course in public health nutrition, chiefly for physicians and other health professionals, was held from June

to August and was attended by 23 professionals from 15 countries of the Hemisphere. For the first time the course was given entirely in Spanish.

The Institute continued its special training programs, including those in applied nutrition, laboratory work, and clinical nutrition studies. Of the 27 postgraduates or undergraduates in their last year who attended these courses, 25 were from 11 countries of the Americas, one from Ethiopia, and one from Switzerland (Table 22).

Publications

A total of 67,481 copies of INCAP pamphlets on nutrition education were distributed to various countries in 1966. Ten new pamphlets were issued during the year.

The fifth compilation of scientific papers of INCAP was issued in Spanish in June (Scientific Publication PAHO 136).

The quarterly publication *INCAP Informa* continued to appear regularly.

TABLE 22. NUMBER OF PARTICIPANTS IN INCAP TRAINING PROGRAMS, BY COUNTRY OF ORIGIN AND TYPE OF STUDY, 1966

Country	Type of study						Number of fellows
	Special programs			Nutrition in public health	Applied nutrition for Latin American dietitians	School of Nutrition and Dietetics	
	Applied nutrition	Laboratory	Clinical nutrition studies				
Argentina.....	—	1	1	3	2	—	7
Bolivia.....	—	—	—	1	1	—	2
Brazil.....	—	—	—	1	1	—	2
Canada.....	—	1	—	—	—	—	1
Chile.....	—	—	1	—	1	—	2
Costa Rica.....	—	1	—	2	—	4	7
Colombia.....	—	—	—	2	1	—	3
Dominican Republic.....	4	—	—	—	—	—	4
El Salvador.....	—	—	—	2	—	4	6
Ethiopia.....	1	—	—	—	—	—	1
Guatemala.....	—	2	1	2	—	5	10
Haiti.....	—	—	—	—	1	—	1
Honduras.....	—	—	—	1	—	3	4
Mexico.....	—	—	—	2	—	—	2
Nicaragua.....	1	3	1	1	—	1	7
Panama.....	—	1	—	—	2	4	7
Paraguay.....	—	—	—	1	—	—	1
Peru.....	—	1	—	1	—	—	2
Switzerland.....	—	1	—	—	—	—	1
United States of America.....	—	3	2	1	—	—	6
Uruguay.....	—	—	—	1	1	—	2
Venezuela.....	1	—	—	2	2	—	5
Total.....	7	14	6	23	12	21	83

— None.

MENTAL HEALTH

The lack of accurate data on the magnitude and distribution of mental disorders and personality maladjustments has kept this area of activity from receiving the priority it deserves within the general context of the health problems affecting the population of the Americas. There are certain indirect indicators—such as mortality rates for accidents, homicides, suicides, and alcohol-connected cirrhosis of the liver—which in some countries reach alarmingly high levels, but there is as yet no clear awareness of the relationship between mental disturbances and the resulting loss of human capital. Conscious of this fact, the Organization has been promoting epidemiological studies on mental diseases, as well as meetings to organize international research on this subject.

In San José, Costa Rica, PAHO convened a Study Group to discuss epidemiological research on alcoholism in Latin America, which met from 15 to 18 July 1966 and was attended by specialists from Argentina, Brazil, Chile, Costa Rica, Guatemala, Mexico, and Peru. The Group proposed a plan for international research on the frequency of alcoholism, on the attitudes of the public toward the disease, and on the cultural patterns that give rise to the habit of drinking alcoholic beverages.

Many Governments, concerned at the condition of the majority of the psychiatric hospitals—which in reality are more like custodial centers where the expectation of life or recovery is very low—are attempting to improve the existing system, and in this connection the Organization has cooperated with some of them in a number of different ways. However, PAHO holds the view that psychiatric hospitals should be used only as a last resort in treating mental diseases and believes that ideally patients should receive attention within the community through outpatient clinics, dispensaries, child guidance clinics, psychiatric wards in general hospitals, supervised workshops, etc., which, in addition to giving patients effective treatment, keep them in a familiar environment and prevent them from becoming alienated from society.

Aside from the provision of curative services, it is evident that preventive care is also needed. In the field of primary prevention there are a few mental diseases that can be prevented by direct means (certain types of mental retardation, epilepsy of organic origin, phenylketonuria and progressive general paralysis), but the etiology of the immense majority of these diseases is multifactorial and by no means fully understood, so that the only possible course is to attempt to exert influence on such harmful causative factors as abandonment by the mother, lack of social stimulus, and disturbing experiences in childhood.

However, other socioeconomic and cultural factors fall outside the province of the public health administrator. In almost all of these cases, secondary preventive action can be taken thanks to the early detection and treatment of patients that can be made possible through the facilities known collectively as community mental health services.

These ideas have been expressed by PAHO staff at various meetings, and recommendations along the same lines were presented to a number of countries (Argentina, Colombia, Costa Rica, Guatemala, Honduras, Jamaica, and Venezuela) during a series of visits made during the year. Recommendations were also made on a third kind of prevention, namely, effective rehabilitation. In this connection it was proposed in Jamaica that a special technique known as “remotivation” be adopted to rehabilitate chronic patients.

The Mental Health Information Center on Latin America completed the initial compilation of legislation affecting mental patients in Latin American countries, and continued to provide bibliographic data to interested institutions.

For education and training activities in mental health, see Chapter III of this *Report*.

DENTAL HEALTH

The Organization continued to assist the Governments in strengthening their dental health programs. Four PAHO consultants worked on assignments in Brazil at the International Center for Dental Epidemiology and Research (CIEPO), established at the School of Hygiene and Public Health of the University of São Paulo. The curriculum was prepared for the first international course on dental epidemiology and design of experiments; the course is scheduled to be held from 27 March to 6 May 1967. PAHO and the W. K. Kellogg Foundation will pay the travel and lodging expenses of 12 dentists from eight Latin American countries who will attend the course; also, the Foundation will help pay the salaries of the teaching staff at the Center. PAHO donated the instruments and equipment for the field testing and other permanent activities of the Center.

The Organization continued to cooperate with the Government of Colombia in its efforts to incorporate dental aspects into its survey on health manpower and medical education. Research on the fluoridation of cooking salt continued at Antioquia University in Medellín, with support from the U.S. National Institutes of Health and technical assistance from PAHO. Fluoridated salt was once again distributed throughout the year to the

communities included in the study (Armenia and Montebello). A nutrition survey and dental epidemiology studies were conducted in these two communities and in two others that served as controls, and tabulation of the data obtained was begun.

The Health Ministry in Jamaica received advice on preparations for a plan to establish a school for dental nurses. The Government submitted a request for assistance to UNICEF and drew up a program of activities for 1967. Work also began on revising the architectural drawings of the building in which the school will be housed. A consultant assisted in drafting the preliminary version of the agreement that the Ministry hopes to conclude with UNICEF and PAHO.

In Mexico three specialized consultants cooperated with the Ministry of Public Health and Welfare and the Ministry of Hydraulic Resources in connection with the fluoridation of the public water supply.

In Nicaragua a consultant helped to organize the recently established Dental Division of the Public Health Ministry and to prepare a plan for coordinating the programs of the new division with those of the Preventive and

Social Dentistry Department of the National School of Dentistry.

The Organization cooperated with the Venezuelan Ministry of Health and Social Welfare in preparing a detailed program for an Integrated Dental Plan for the country, and in drawing up the program of activities for 1967. The Plan, which will cover all aspects of dental health, in addition to the teaching of dentistry and professional practice, was studied by a committee composed of representatives of the Ministry, the three dental schools, and the Venezuelan Dental Association. The committee was in favor of the Plan. The Government appointed an executive secretary and a deputy secretary to attend to the program for the Integrated Plan, and a draft was prepared of the agreement covering this project that will be signed by the Government and PAHO. The Organization made the necessary arrangements to recruit a special consultant to assist in this program.

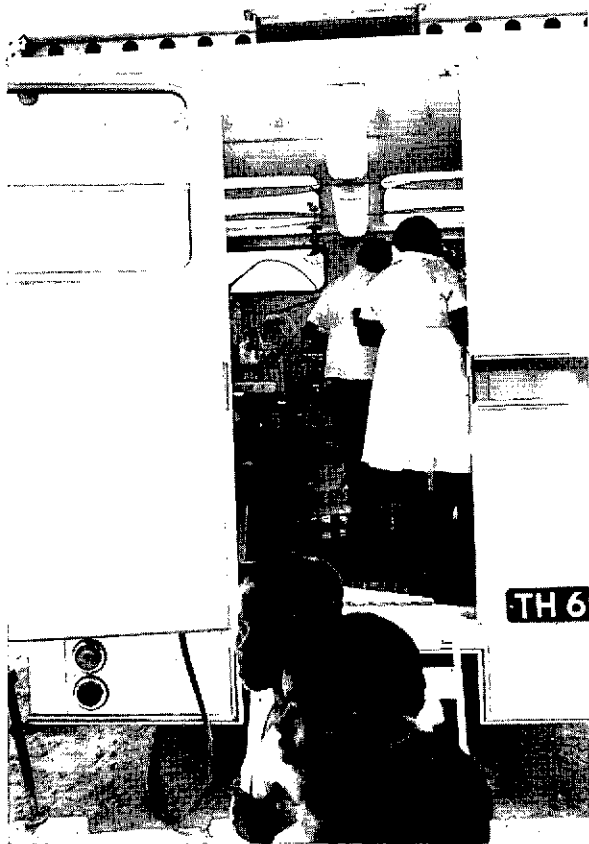
A consultant cooperated with the Dental Association and the Central University of Venezuela in studying plans for establishing a national laboratory for the quality control and standardization of dental materials and for research and training in this area. A general plan covering the operations of the laboratory was prepared and consultations with agencies that will cooperate in this project were begun.

During the year specialized literature was prepared and distributed to all countries in the Hemisphere. In addition, the publication *Guide to Dental Materials*, of the American Dental Association, and the list of specifications on dental materials, of the International Dental Federation, were translated into Spanish for distribution in Latin America, beginning in August 1967. These volumes will be published (5,000 copies each) by the University of Mérida and the Venezuelan Dental Association.

(See also Chapter III, Education and Training.)

HEALTH LEGISLATION

Late in December 1965 the PASB transmitted to the Governments the final report of the Expert Committee on the International Transportation of Human Remains, containing a set of proposed standards on this subject. During the first quarter of 1966, replies were received from Argentina, Colombia, the Dominican Republic, El Salvador, Honduras, Jamaica, Panama, Paraguay, Peru, Trinidad and Tobago, the United States of America, and Venezuela; receipt of the report was acknowledged by Brazil, Costa Rica, Guatemala, and Mexico; and communications



A mobile unit gives dental treatment to elementary schoolchildren in Trinidad and Tobago.

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were received from Canada, Antigua, the Bahamas, Barbados, Dominica, and Montserrat.

The reports and the Governments' replies, which were generally favorable to the proposed standards, although some contained comments on them, were submitted to the 54th Meeting of the Executive Committee (Washington, D.C., April 1966), pursuant to Resolution XXXVI of the XVI Meeting of the Directing Council.

The Executive Committee designated a working party to study the standards prepared by the Expert Committee and, as proposed by that group, approved Resolution XVIII in accordance with which the standards, revised by the working party, were transmitted to the XVII Pan American Sanitary Conference together with a summary of the discussions in the Executive Committee. The Conference was requested to approve standards on the international transportation of human remains and to transmit them to the Governments for inclusion in appropriate form in the laws of each country.

On 7 October 1966, the XVII Pan American Sanitary Conference, XVIII Meeting of the Regional Committee of the World Health Organization, approved and transmitted to the Governments the Declaration and Standards concerning the International Transportation of Human Remains, as set forth in Resolution XXIX. The resolution also recommended to the Governments that they apply the standards in the manner they deemed most appropriate and invited them to inform the Director of the Bureau of the measures taken in this respect. It also requested the Director to endeavor to obtain the implementation of the standards by the Governments and to bring the resolution to the attention of the Director-General of WHO.

At the end of October the Director transmitted this resolution to the Governments and to the WHO Director-General. To strengthen the recommendations of the Conference, the Director requested the Zone Chiefs and Country Representatives to take appropriate steps to promote action by the national authorities. The Bureau also requested the Technical Unit on Tourism of the Pan American Union to facilitate, through its services in the Hemisphere, the adoption of the standards by the Governments.

By the end of 1966 communications had been received in regard to the Bahamas, Bolivia, Colombia, Costa Rica, the Dominican Republic, Ecuador, Guatemala, Panama, St. Vincent, Surinam, Venezuela, and Canada. Some were merely acknowledgments; others referred to the action taken to comply with Resolution XXIX. Of particular interest was Circular No. 40 addressed by the Ministry of Public Health of Colombia to the directors of national health services and port health authorities, requesting

them to take immediate action to put the standards on international transportation of human remains into effect in their respective jurisdictions.

RADIATION AND ISOTOPES

Through its program in this field, the Organization continued to promote the following activities: (a) adoption of international standards and development of procedures and regulations for radiation protection in the use of X-rays and radioisotopes and for the disposal of radioactive wastes; (b) teaching of basic radiation physics, radiobiology, and radiation protection in professional schools; (c) use of radioisotopes for medical diagnosis, therapy, and research; (d) research in applications of radiations and isotopes that may have medical, public health, and veterinary significance; (e) training of paraprofessional personnel to work in newly organized radiation protection health services; and (f) training of professional personnel to receive instruction in the medical use of radioisotopes.

During 1966 the PAHO radiation physicist stationed in Lima, Peru, made visits to the health departments of various countries of the Americas to promote the establishment of radiation protection services and the training of inspectors to carry out this work. As a result of these efforts requests for country projects were received from Costa Rica, Guyana, and Jamaica. Advice was also provided by the radiation physicist to a number of countries for the training of radiation health inspection services, and educational material on radiation protection was distributed regularly.

Under a collaborative program between the Organization and the U.S. Public Health Service, equipment and supplies were made available for the fifth successive year to those health departments desiring to determine the amounts of radionuclides present in air and milk and thereby assess the possible public health hazards to the population.

Nine stations (Buenos Aires, Argentina; La Paz, Bolivia; Santiago, Chile; Bogotá, Colombia; Guayaquil, Ecuador; Kingston, Jamaica; Lima, Peru; Port-of-Spain, Trinidad; Caracas, Venezuela)—of which three were established in 1966, in La Paz, Bogotá, and Guayaquil—were provided with air sampling equipment and five of them were also cooperating in the milk sampling program. The surveillance stations, staffed by local personnel, submit daily air samples and monthly composite milk samples, through the Organization, to the USPHS laboratories

at Rockville, Maryland, and Montgomery, Alabama, respectively. The results of the analyses are forwarded to the Organization, which provides administrative and reporting service to the stations.

As a result of the studies carried out with the assistance of the radiation physicist and a short-term adviser, Jamaica presented to the Organization a request to establish a special radiation surveillance project, which will be started in 1967 and in which an extensive survey will be made of differences in rainfall, altitude, and animal feed in order to establish their possible relationship to differences in radionuclide content of milk samples from diverse milk sheds.

A number of research projects were continued during the year with the cooperation of the USPHS and the U.S. Atomic Energy Commission. Details of these activities are given in Chapter V of this *Report* (Research).

The Organization continued to promote the distribution to the countries of technical bulletins on the potential value of irradiation as a food preservation measure, and as a means of facilitating food distribution, reducing food wastage, and thereby improving human and animal nutrition. Contacts with experts in the speciality were maintained, with a view to preparing to meet eventual requests for assistance in this field.

Close collaboration was maintained with the USPHS Division of Radiological Health, in order to make current technical literature available to Latin America. Further information on this subject is given in Chapter III of this *Report* (Education and Training).

To assist the field staff in developing radiation programs of various types, the detailed guidelines prepared in previous years were further up-dated and distributed during 1966.

Information and guidelines were provided to WHO in connection with the establishment of an international air and milk surveillance program to be coordinated at the Geneva Headquarters, similar to the one coordinated by PAHO in the Americas in cooperation with the USPHS.

INDUSTRIAL HYGIENE AND AIR POLLUTION

In July 1966 the office of the PAHO Regional Adviser in Santiago, Chile, was transferred to Lima, Peru, and was established as the Regional Office in Industrial Hygiene and Air Pollution. In addition to the activities con-

nected with the project listed as AMRO-4600, this Office is also responsible for project Chile-4601, the Institute of Occupational Health and Air Pollution Research, a United Nations Development Program project, for which the Organization is the executing agency. In November an additional engineer was assigned to the Office to work principally in air pollution control and to participate also in industrial hygiene activities.

Preparations continued for the establishment of an air pollution network in cooperation with 10 Latin American cities to obtain comparable data on the extent of the air pollution problem in Latin America. By the end of 1966, these cities had already begun activities related to this project. Equipment for the network has already been purchased by the Organization and it is hoped that the project will be put into operation in 1967 in the following cities: Buenos Aires, Rio de Janeiro, São Paulo, Santiago, Bogotá, Kingston, Mexico City, Lima, Montevideo, and Caracas.

In Argentina, the Organization assisted the Municipality of Mar del Plata in studying air pollution and obnoxious odors arising from fish meal plants. A short-term consultant made a two-week survey of the problem and recommended measures for its control.

Visits by PAHO advisers were made to several Central American countries to consult with national authorities. In Panama assistance was given in advancing the new program in occupational health, and in El Salvador a two-week course in industrial hygiene was organized under the auspices of the Ministry of Health, the School of Engineering and Architecture of the University of El Salvador, and PAHO.

Advisory services were given during visits to Brazil, Jamaica, and Mexico in connection with the organization of the air pollution surveillance network, and to Chile in regard to the studies of radioactivity in air and milk in which PAHO is collaborating with the U.S. Public Health Service.

In March, PAHO participated in the Latin American Symposium on Industrial Development, held in Santiago, Chile, under the joint sponsorship of the Economic Commission for Latin America and the United Nations Committee for Industrial Development. A staff member presented a paper on the improvement of the health of workers and of environmental conditions of the communities in which they live, as a key factor in industrial development.

A staff member visited Brazil to consult with the interested agencies on the expansion of the present air

II. PROMOTION OF HEALTH: SPECIFIC PROGRAMS

pollution program in the São Paulo area. A special commission, appointed in September and comprising representatives from the Municipality of São Paulo, the State Health Department, and eight municipalities surrounding the city, began the preparation of an integrated plan for an expanded program in that area. It is expected that PAHO will be requested to assist in drafting an application to the U.N. Development Program for financial aid in this program.

In June an organizing committee composed of members of the Institutes of Occupational Health of Bolivia, Chile, and Peru met in Santiago to prepare the agenda and work plan for a seminar on silicosis to be held in La Paz, Bolivia, in July 1967, with six participants from each of the Institutes, six from private industry, and possibly one or two consultants.

Courses in industrial hygiene were given with PAHO assistance at the University of Buenos Aires, Argentina, and at the University of El Salvador, San Salvador. As a result of the latter course, the Organization was requested to prepare a 60-hour lecture schedule, which is to be included in the regular engineering curriculum of the School of Industrial Engineering and Architecture of El Salvador University. A short course on air pollution was given with PAHO cooperation at the University of São Paulo, Brazil, to physicians of the state health centers, and a seminar on the same topic, sponsored by PAHO, was held at the University from 5 to 10 December 1966.

Institute of Occupational Health and Air Pollution Research

During 1966 this Institute, located in Santiago, Chile, continued to expand its training activities, research, and services.

The second course for industrial hygiene and safety technicians was held from March to September and was attended by 10 students: eight from Chile and two from abroad (Panama and Venezuela).

The first full academic-year course (8 March to 3 December) in occupational health was attended by five physicians and engineers, three from Chile and two from abroad (Bolivia and Nicaragua), and included both theory and intensive field practice.

Members of the Institute staff presented lectures at the Schools of Public Health, Medicine, and Engineering of the University of Chile, and at the School of Chemistry of the Catholic University (Santiago). They also participated in courses at the National Institute of Technical Training in Chile; in two courses given abroad (Argen-

tina and El Salvador); and in inservice training at the Institute of Occupational Health for 12 professionals from Chile and three from abroad (Argentina and Peru). A series of lectures on occupational dermatosis was given by a consultant at the Institute.

The Institute's research program increased considerably; 12 projects were either completed or in progress during 1966. They included studies related to radioactive contamination, pollution from pesticides, benzol poisoning, determination of cancerogenic substances in air, determination of toxic products formed by the decomposition of fish, energy expended by certain types of work, physical capacity of Chilean workers, carbon monoxide poisoning in traffic policemen and drivers of public vehicles, and other studies.

Of special interest was the intensive work carried out for the development of satisfactory measurements of radioactive contamination produced by atomic explosions conducted in the South Pacific area in the second half of the year. The Institute rapidly organized six air sampling stations in various parts of Chile and collected and analyzed milk samples in three other locations. The Organization sent a radiophysicist and a radiochemist to Chile to aid the national authorities in developing measurement methods. This episode afforded an excellent example of the Institute's capacity to meet emergencies within its field of work.

The services rendered by the Institute also increased appreciably. The Industrial Hygiene Laboratory completed 3,224 analyses, representing a 22 per cent increase over 1965. The Work Physiology Laboratory conducted 2,367 determinations (a 320 per cent increase over 1965). A total of 4,386 persons were examined to determine the incidence of pneumoconiosis. The dosimetry service of the Radiological Protection Laboratory was continued as was the air pollution sampling service. Sampling points were added in the Provinces of Valparaíso, Aconcagua, and Antofagasta, to determine air pollution in those locations.

With reference to the use of pesticides in agricultural pursuits, the Institute worked on the classification of these substances to determine the manner of their sale to the public, gave advice to a commercial agricultural firm in determining pesticide residues in grain that was being distributed, studied the exposure to pesticides of personnel from the National Health Service, and conducted studies in various industries handling these compounds to suggest control methods.

Four outside consultants worked at the Institute during

the year: two radiation specialists, for two weeks each, in connection with the measurement of radioactive contamination; an occupational dermatologist, for two months, to conduct a series of lectures and investigate and report on dermatosis problems in various industries; and a consultant from Venezuela, for six weeks, to lecture on indus-

trial ventilation to students of the full academic-year course.

At the end of the year the Institute had 21 professionals working full time, 14 administrative and clerical staff members, and received 100 man-months in part-time professional and technical services.

III. EDUCATION AND TRAINING

This Chapter contains information on education and training projects proper, on education and training activities conducted as part of general and specific health projects, and on the fellowships granted or administered by the Organization.

The educational activities conducted by the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center will be found in Chapter I.A (*see under Zoonoses*); those in the field of veterinary public health are included in Chapter II.A. For the educational activities of the Institute of Nutrition of Central America and Panama, *see under Nutrition*; and for those of the Institute of Occupational Health and Air Pollution Research, *see under Industrial Hygiene*, both in Chapter II.B.

Schools of Public Health

The schools of public health in Latin America continued to receive advisory services from the Organization upon request.

In Cuba a consultant assisted in reorganizing the programs of instruction in health administration in the School of Public Health, and in Peru another consultant cooperated with the School of Public Health in Lima in formulating the basic guidelines of its courses in epidemiology.

Two advisers assigned on a long-term basis to the School of Public Health of the Central University of Venezuela, in Caracas, assisted the School in organizing its instruction in health education and in nutrition.

Grants were made to a number of schools, including the School of Hygiene and Public Health of the University of São Paulo, Brazil, and the School of Public Health of the University of Antioquia, in Medellín, Colombia, for specific activities as, for example, the development of field training centers. Others received assistance in the form of equipment. The School of Public Health of the University of Chile was provided with books for its library.

A Study Group on the Training of Auxiliary Health Workers convened in Mexico City, under PAHO auspices, from 27 March to 1 April 1966. The Group, composed of experts from Argentina, Brazil, Chile, Mexico, Panama, Peru, and Venezuela, based its discussions on a report prepared by a special PAHO consultant after a fact-finding visit to Brazil, El Salvador, Mexico, Peru, and Venezuela. The meeting adopted a more precise definition of the term "health auxiliary" and agreed on the need to have a pre-existing minimum structure of health services organized to use personnel of this type. It was stressed that the training would yield effective benefits only to the extent that continuing supervisory services and proper systems for the referral or assignment of patients were available. Specific recommendations were adopted on ways of selecting, training, and supervising auxiliary workers as a means of fostering a much-needed expansion of health services and, particularly, of increasing their coverage in rural areas. The role of the school of public health was defined as that of preparing the teaching staff to train auxiliary personnel.

From 21 to 25 November another Study Group met in Rio de Janeiro, Brazil, to discuss the best means of achieving coordination in the teaching of preventive and social medicine in the various schools or faculties of a single university. The meeting was attended by professors of preventive and social medicine from schools of public health, medicine, dentistry, nursing, veterinary medicine, and sanitary engineering in Brazil, Chile, Colombia, Guatemala, and Peru. The Group suggested a set of guidelines for coordinating the instruction in such a way as to make the most effective use of the limited number of teachers in this field and also to assure maximum use of the material resources available to a university for its teaching programs.

Educational filmstrip program. The organization continued its program for the production of filmstrips in colors, with subtitles in Spanish and Portuguese and accompanying texts, for use as teaching aids in the schools of public health, medicine, dentistry, nursing,

veterinary medicine, and sanitary engineering in Latin America. The program is carried on in cooperation with the Audiovisual Facility of the U.S. Public Health Service, located in the Communicable Disease Center in Atlanta, Georgia.

In 1966 eight filmstrips, with an average of 75 frames each, were prepared on the following subjects: sanitary aspects of well-drilling; introduction to bacteriology (Part I: basic biology of bacteria); plumbing systems: syphoning and cross-connections; sanitary aspects of well-digging; basic notions of human blood types; *Schistosoma mansoni* (Part II: prophylaxis); the taking of stool specimens; the preparation of hematoxylin stain smears for the diagnosis of intestinal protozoa.

Approximately 3,000 copies of the filmstrips were distributed during the year to schools throughout Latin America.

Medical Education

The Organization, in compliance with the mandates of its Governing Bodies, builds its programs of medical education upon the following principles:

The term "medical education," accepted in the broadest sense, refers to the training of professional personnel who form the nucleus around which is integrated the entire group entrusted with the promotion and restoration of health, the prevention of disease, and the development of community welfare. Within this concept are included programs of medical teaching at all levels. The general keynote is that medical education should be a continuing process of service to communities and that physicians should participate in it throughout their entire careers.

To assist in achieving these ends, the Organization concluded 10 new agreements with ministries of health during 1966, making a total of 21 now in operation.

The PAHO staff in this field was strengthened by the addition of five medical officers: one adviser in the planning and development of schools of health sciences; one in the teaching of medical sociology as applied to health problems; and three in the general development of medical education programs, with special reference to the teaching of preventive medicine and pediatrics. The latter three were stationed in Caracas, Venezuela, and in Rio de Janeiro and Recife, Brazil.

In the Organization's program emphasis is placed on the development of the countries' own training institutions and resources, and on coordination of international cooperation in higher education. Of the 122 medical schools and nine national associations of medical schools

in Latin America, PAHO has rendered direct assistance to 49 of the former and six of the latter.

During the year 36 short-term consultants and several regular staff members made 40 visits to 27 medical schools in 15 countries to assist in the following activities: planning and organizing curricula, new departments, integrated teaching, teaching of basic sciences and of preventive medicine, and internship programs; assessment of premedical education; training courses for faculty members in medical pedagogy and population dynamics; seminars on medical education and on special subjects such as epidemiology; a study of plans for developing new training centers for faculty members in Latin America.

The two-year Study of Health Manpower and Medical Education in Colombia, conducted by the Government and the Colombian Association of Medical Schools, in collaboration with the Organization and the Milbank Memorial Fund, was completed at the end of 1966. In the light of the preliminary results, some of the medical and nursing schools are already considering urgent revisions in their programs, and the Colombian Association of Medical Schools is making recommendations on the establishment of a medical school following a new organizational scheme. The final results of the Study will be presented at the International Conference on Health Manpower and Medical Education, to be held from 19 to 23 June 1967, in Maracay, Venezuela.

A new program was started to assist the countries in better understanding basic principles of the physiology of human reproduction. The Medical School of the University of El Salvador organized a unit of Obstetric Physiology for training and research in this field, with a grant from PAHO for teaching supplies and equipment. The Departments of Physiology and of Obstetrics and Gynecology of the School established a collaborative relationship with the counterpart department of the Medical School in Uruguay, which is also assisted by PAHO under a plan for the teaching of statistics.

Five two-week courses entitled "Laboratory of Human Relations and Medical Teaching" were held at medical schools in Costa Rica, Mexico, Peru, and Uruguay, and provided training to 155 faculty members from 13 countries. The purposes of this PAHO/WHO training program, which completed its fifth year, are to promote new approaches and interests regarding education, and to develop knowledge of the principles of pedagogy. Plans were made to organize similar courses in 1967 in Argentina, Honduras, Mexico, Uruguay, and Venezuela. It is hoped to establish a roster of national leaders who will

organize these courses independently in the future on a national or regional basis.

A PAHO consultant assisted the Government of Venezuela and the Venezuelan Association of Medical Schools in the preparations for the Third Venezuelan Seminar on Medical Education, to take place in Maracaibo in January 1967. Meetings were held at each of the six medical schools in Venezuela, for preliminary discussion of the topics and the preparation of reports to serve as basic documents for the Seminar.

A plan to reorganize and integrate the teaching of preventive medicine and public health in the medical curriculum was being prepared by the Medical School of the Federal University of Pernambuco, Recife, Brazil, with the technical and financial assistance of the Organization. Under the plan, the School will serve as a major pediatric training center for the country.

The Medical School of the University of Antioquia in Medellín, Colombia, established a training center for faculty members of medical schools in Latin America, with the aid of a five-year grant from the W. K. Kellogg Foundation. Over five years, beginning in June 1966, the School will appoint 10 new full-time professors and provide postgraduate training for 50 teachers from Latin American schools sponsored under the Organization's fellowship program. PAHO will continue providing advisory services. A similar project is planned by the Medical School of the University of Nuevo León, Monterrey, Mexico.

At the University of Nicaragua, two PAHO experts assisted the university authorities in an over-all assessment of the medical education program, especially curriculum planning. Another expert collaborated with the Medical School in organizing its internship program.

A program for improving the quality of teaching through the provision of textbooks for medical students is being developed by the Organization. Under the plan, PAHO will sponsor the publication of 22 titles: five in each of the first two years, and four in each of the three following years. The program will be carried out by means of a revolving fund covering the costs of the initial selection, translation, and publication of the textbooks for subsequent sale at cost or rental to the students. Participating medical schools will be invited to nominate candidates to an expert committee responsible for selecting or preparing the texts to be published. It is estimated that 20,000 copies of each title will be needed to meet the requirements over a three-year period, which is the life span of a book under the rental system.

In April 1966, the Organization began a two-year study to assess the preventive medicine and community health

teaching programs in the medical schools in Latin America. Visits were made to 15 schools in Brazil, Chile, Ecuador, Honduras, and Venezuela to collect data through interviews with 150 key professors and administrators and to pre-test a questionnaire designed for the study. The preliminary results will be ready in the spring of 1967 for review by the PAHO Advisory Committee on the Teaching of Preventive and Social Medicine in Latin America.

The Organization continued to support the Pan American Federation of Associations of Medical Schools through the joint planning of medical education projects. A major feature of these was the publication of a new quarterly journal of medical education entitled *Educación médica y salud*, the first issue of which appeared in October 1966. The aim of the journal is to promote the interchange of information on current advances in medical and paramedical education among teachers, administrators, and others concerned with the training of health personnel; and to stimulate experiments in developing and implementing new programs and concepts and educational research. The journal is distributed primarily to schools of public health, medicine, nursing, dentistry, and veterinary medicine, and to health authorities, other government officials, and national libraries of the Americas.

The Medical Education Information Center (MEIC), for which the PAHO serves as permanent secretariat, held its XVIII Meeting in New York City in May 1966, under the auspices of the Milbank Memorial Fund. A total of 34 participants represented 27 private, governmental, and international agencies that provide technical and financial support to medical education in Latin America. Highlights of the meeting were the pronouncement of the interest of the Josiah Macy, Jr. Foundation in strengthening training in pediatrics in Latin America, the new policy statement of the Kellogg Foundation on the inclusion of the training of paramedical auxiliary personnel in its future activities, and the report of the PAHO program of textbooks for medical students. A summary report on activities of international cooperation in medical education in Latin America during 1965, presented as a background paper, listed 143 projects in education and research, and 161 fellowships for the advanced training and preparation of faculty members of medical schools.

Nursing Education

The most serious shortage in health manpower in Latin America is in nursing personnel. The number of nurses

and trained nursing auxiliaries is inadequate to provide the required services. In the 10 countries of South America there are only 41,359 graduate nurses, or 2.5 per 10,000 population; in the 13 countries of Middle America there are about 21,200, or 2.9 per 10,000 population. Of the total of some 172,000 nursing auxiliaries existing in the two areas, only 26 per cent have received training for their duties.

Of the 15 PAHO projects in nursing education, three were chiefly related to advanced programs or post-basic courses, 10 were related to basic schools of nursing, and two dealt chiefly with the preparation of nursing auxiliaries.

As schools of nursing strive for higher standards (minimum nine years of study for students entering three-year basic programs; 12 years for university schools of nursing), the number of students graduated from nursing schools has been slightly reduced: 2,147 students graduated in 1964, 2,456 in 1965, and 2,095 in 1966. This decrease can be attributed to various factors: relatively low professional status of nurses, uncertain employment opportunities upon graduating, and low earning power.

The 1966 Directory of Schools of Nursing in Latin America published by PAHO listed 109 schools of nursing, as compared with 103 in 1965. A total of 4,155 students entered the first-year class of these schools (3,672 entered the previous year).

The report of the survey of Caribbean schools of nursing—carried out from August 1964 to June 1965—was published in 1966 (*PAHO Reports on Nursing No. 6*). Follow-up visits, for discussion of the report and planning for the future, were made by PAHO staff to all 23 schools located in the area.

With the Organization's assistance a Nursing Education Seminar, held from 23 August to 2 September 1966 at the University of the West Indies in Jamaica, brought together 19 tutors of the area to discuss the need for and preparation of the various levels of nursing personnel and to formulate guidelines for the development of a suitable educational program to prepare professional nurses for comprehensive nursing care.

The Seminar recommended that priority be given to the following aspects: (1) professional preparation of nurse-teachers; (2) the need for preparation of another category of workers in the nursing team, comprising such personnel as aides, auxiliary workers, etc.; and (3) the establishment of a regional nursing entity that would provide accreditation of schools of nursing (on a voluntary basis), advice and assistance in developing and implementing a sound nursing education program, and peri-

odic evaluation of programs in order to maintain these standards.

In Guyana, as the result of discussions between the Ministry of Health, the Department of Nursing of the Russell Sage College (Troy, New York, U.S.A.), and the Organization, courses for graduate nurses were organized, utilizing funds available from the United Nations Technical Assistance Program. The objectives of the courses, which were held from June to September 1966, were to improve patient care through post-basic preparation of graduate nurses designed to (1) assist in the development of clinical and educational skills that will permit effective discharge of the responsibilities already assumed by graduate nurses; (2) provide education for the professional development of graduate nurses showing a capacity for administration, supervision, and clinical teaching of nursing students; and (3) assist the cooperating teachers in planning for continuity in the educational program throughout the year.

In Peru, the Organization continued to provide assistance in the preparations for establishing the San Marcos University School of Nursing, in the Faculty of Medicine, which was scheduled to open in April 1967 in Lima. Four university schools of nursing are included in the project: those of the University of San Marcos, in Lima, the University of Trujillo, in La Libertad, and the Universities of Santa María and San Agustín, in Arequipa. All these schools were visited by PAHO advisers during the year.

In preparation for the opening of the new School, and also to assist the other universities included in the project, a post-basic program of studies for instructors was offered in the San Marcos University; 13 nurses were enrolled. During two academic years these nurses had taken studies in the humanities and sciences on their own campuses, and also attended summer school at the San Marcos University, where PAHO short-term consultants conducted classes, seminars, and clinical practice sessions. Advisory services for this project were strengthened by the appointment of an experienced nurse-educator who arrived in Peru in September.

It is expected that this School of Nursing will be one of the best organized in South America, as time was taken to properly prepare the faculty members in advance and all of them will have received their Bachelor of Science degree before the inauguration of the first classes.

In Argentina, the cooperative project for the training of nursing personnel continued to make progress. The Government sponsored a meeting in September 1966 to establish minimum standards for schools of nursing; a system for supervision and control of the schools; and

a scheme whereby nurses graduated from schools abroad can validate their status. The meeting was attended by 145 participants comprising directors of nursing schools, chief nurses of the Ministry of Public Health and of provincial health departments, and the chief nurse of the Central Division of Nursing, Municipality of Buenos Aires.

In courses conducted in eight areas of Argentina, including Chaco Province, a total of 218 nursing auxiliaries were prepared during the year.

Environmental Sanitation

The training of professionals in the field of sanitary engineering is made constantly more complex by the rapid changes in knowledge and techniques. Obsolescence is a permanent threat. Population growth and accelerated urbanization, with the consequent pressure for improvement of the environment, give rise to many challenges that can only be met with by developing new principles and specialized methods fitted to the changing conditions.

The difficulty of making new technological knowledge available to practicing professionals, and the fact that the number of new professionals entering the field is insufficient to meet the greatly increased demand, constitute weaknesses that menace the success of environmental improvement programs.

There is no practical way of calculating the number of professionals that are required in the Hemisphere. In the United States of America, for example, there are 33 sanitary engineers per one million inhabitants; in Brazil the number of engineers working in sanitary engineering is 12 per one million, but of these 12 only four have completed specialized courses. If one were to calculate on the basis of these rates, the need for highly qualified engineers could be estimated at anywhere from 1,000 to 9,000 to serve 270 million people, which is the predicted population of Latin America by the end of the current decade.

To help cope with the need both for expanding graduate and undergraduate education and for providing engineering staff with opportunities for keeping abreast of recent technological advances, the Organization intensified its program of assistance to engineering schools in Latin America. The six agreements signed with universities in 1966 raised the number of projects in operation to 31, in 18 countries and other areas, as follows: Argentina, Bolivia, Brazil (10), British Honduras, Chile, Colombia (3), Costa Rica, Cuba, Ecuador, El Salvador, Honduras, Mexico (3), Nicaragua, Panama, Peru, Trinidad and Tobago, Uruguay, and Venezuela. The agreements covered provision of consultants to assist in review-

ing or initiating educational programs; advisory services for improving the physical facilities of the schools and for preparing requests for assistance from financing agencies; fellowships for faculty members; promotion of continuing education through short courses; and promotion of research activities.

Courses were organized by the schools and the Organization provided technical and financial assistance. The grants awarded by PAHO were limited to about 50 per cent of the actual cost of any course. International consultants lectured in the courses or helped in their organization, but local professors were in charge of 80 per cent or more of the course program.

As listed in detail in Table 23, 60 short intensive and specialized courses, six seminars, and one symposium were conducted in the following countries: Argentina 7, Bolivia 2, Brazil 18, Chile 8, Colombia 6, Costa Rica 1, Cuba 1, Ecuador 1, El Salvador 3, Honduras 2, Jamaica 1, Mexico 6, Nicaragua 2, Panama 2, Peru 2, Trinidad and Tobago 2, Uruguay 1, and Venezuela 2.

A total of 1,831 persons were trained in this program—an impressive figure that reflects the great response of the various countries. The 342 national lecturers who participated in the courses were aided by 82 consultants provided by the Organization (56 short-term consultants and the remainder regular staff members).

The subjects were selected by the schools in consultation with local governmental agencies and other interested institutions, which, in most cases, also contributed toward the organization and financing of the courses. The majority of these were concerned with water supply and they covered almost every aspect: planning, design, financing, construction, operation, maintenance, and administration. Courses were also held on the operation of sewage treatment plants, treatment of industrial wastes, industrial hygiene, utilization of ground water, water pollution control, swimming pool operation, air pollution control, use of digital computers, and design and operation of pumping stations, among others.

The manuals produced in relation to each course included the text material derived from a total of 4,225 conference hours and constituted an important contribution to the technical literature of the Americas.

A special program for the exchange of information and professors was set up between the School of Hygiene and Public Health of the University of São Paulo, Brazil, and the School of Sanitary Engineering of the National University of Engineering in Lima, Peru.

The Organization continued to cooperate with other international agencies that are assisting in the educational activities in sanitary engineering, especially the United

TABLE 23. SHORT COURSES, SEMINARS, AND SYMPOSIA ON SANITARY ENGINEERING HELD IN COOPERATION WITH UNIVERSITIES, 1966

Place of training	Date	Subject	Duration (in hours)	Teaching staff		Personnel trained	
				National	Inter- national		
ARGENTINA:							
University of Buenos Aires, Buenos Aires	11-20 Oct.	Rural water supply.....	101	9	5	47	
	13-23 July	Water pollution.....	62	8	1	23	
	22 Aug.-3 Sept.	Design of rural water supplies.....	73	8	1	12	
	12-17 Sept.	Industrial hygiene, part 2.....	39	5	1	22	
	3-7 Oct.	Seminar on health aspects of housing.....	35	9	2	35	
	28 Nov.-3 Dec.	Seminar on final disposal of garbage.....	44	4	2	31	
	12-21 Dec.	Operation of sewage treatment plants.....	51	8	—	26	
BOLIVIA:							
University of San Andrés, La Paz	23 May-5 June	Design of water supply systems for small communities.....	50	8	2	27	
	26 Sept.-15 Oct.	Ground water.....	102	7	2	23	
BRAZIL:							
University of Bahia, Salvador..	11-22 April	Design and construction of water supply networks.....	60	6	—	19	
	1-31 August	Utilization of ground water.....	156	5	2	25	
University of Ceará, Fortaleza..	11-16 July	Seminar on teaching of sanitary engineering in northeast Brazil.....	34	—	—	39	
University of Paraná, Curitiba.	23 May-4 June	Water quality control.....	58	7	1	16	
University of Recife, Pernam- buco	6-18 June	Rate-structures and accounts.....	60	4	1	19	
University of São Paulo, São Paulo	13-25 June	Pumps and pumping stations used in water supply.....	55	16	—	33	
	22 Aug.-2 Sept.	Seminar on sanitation and the national housing program.....	34	—	—	55	
	28 Nov.-3 Dec.	Air pollution.....	34	12	1	40	
	16-20 May	Bacteriological analysis of water and sewage.	35	...	...	18
	13-24 June	Administration and operation of water and sewerage services.....	72	...	...	20
	22 Aug.-2 Sept.	Application of statistical methods to sani- tary engineering problems.....	70	...	...	26
	21 Nov.-2 Dec.	Physical and chemical analysis of water and sewage.....	76	17	—	10	
	5-16 Dec.	Elements of air pollution control.....	72	...	...	22
	5-9 Dec.	Organization of training programs.....	12	—	1	20	
			Operation of swimming pools (two courses) at Rio de Janeiro and Brasília.....	51
Institute of Sanitary Engineer- ing (SURSAN), Rio de Janeiro		Seminar on environmental contaminants...	35	—	—	35	
		Seminar on industrial wastes.....	35	—	—	26	
	CHILE:						
	University of Chile, School of Physical Sciences and Math- ematics, Santiago	25 May-5 June	Application of computers to engineering problems.....	63	7	—	30
		7-16 July	Treatment of industrial wastes.....	51	11	1	25
		17-27 Aug.	Elements of the design of pumping plants for sewage.....	62	6	1	33
		20-30 Sept.	Training of water and sewage plant operators.	62	4	2	24
		20-29 Oct.	Modern systems of rapid filters.....	43	7	1	40
	University of Chile, School of Public Health, Santiago	12-22 Dec.	Ground water.....	56	5	2	36
		25 July-6 Aug.	Design of rural water supply and excreta disposal services.....	61	16	1	20
5-16 Dec.		Collection, transportation, and disposal of urban refuse.....	48	7	2	34	
COLOMBIA:							
University of the Andes, Bogotá.		18-29 April	Application of electronic computers to sani- tary engineering problems.....	65	4	—	8
	26 Sept.-11 Oct.	Manual systems for the planning and con- trol of construction.....	66	2	1	15	
National University of Colom- bia, Bogotá	21 March-1 April	Programming methods applied to sanitary engineering.....	65	3	—	11	
	4-11 July	Fluoridation of water.....	65	7	2	13	
National University of Colom- bia, Medellín	14-25 Nov.	Water meters and house connections.....	66	5	—	22	
	29 Aug.-10 Sept.	Multiple uses of water basins.....	50	9	1	19	

TABLE 23. SHORT COURSES, SEMINARS, AND SYMPOSIA ON SANITARY ENGINEERING HELD IN COOPERATION WITH UNIVERSITIES, 1966—(Cont.)

Place of training	Date	Subject	Duration (in hours)	Teaching staff		Personnel trained
				National	Inter- national	
COSTA RICA: University of Costa Rica, San José	11-23 July	Pumps and pumping stations	40	4	2	11
CUBA: Carlos J. Finlay School of Public Health, Havana	19 Sept.-1 Oct.	Treatment of domestic and industrial liquid wastes	69	5	5	40
ECUADOR: Central University of Ecuador, Quito	22 Aug.-2 Sept.	Methods of planning and control for sanitary engineering projects	60	—	1	18
EL SALVADOR: Autonomous University of El Salvador, San Salvador	19 Sept.-1 Oct.	Design of water treatment plants for small communities	54	5	2	23
	19 Sept.-30 Sept. 2-15 October	Radiation protection Industrial hygiene and safety	56 42	3 3	5 2	10 47
HONDURAS: National Autonomous University of Honduras, Tegucigalpa	18-30 July	Pumps and geophysics	65	1	3	12
	12-24 Sept.	Design of water treatment plants for small communities	62	5	2	18
JAMAICA: Ministry of Health, Kingston . . .	18 July-30 Sept.	Health education, administration and supervision, and health sciences for sanitary inspectors	330	...	1	30
MEXICO: National Autonomous University of Mexico, Mexico City	20 June-2 July	Design and operation of stabilization ponds	59	4	2	16
	26 Sept.-7 Oct.	Design of water supply systems for small communities	63	12	—	32
	17 Oct.-5 Nov. 14-26 Nov.	Ground water Selection of pumping equipment for drinking water	146 76	8 8	2 —	24 31
	25 July-6 Aug.	Investigation of leakage and metering in water supply systems	86	6	1	22
University of Nuevo León, Monterrey Ministry of Hydraulic Resources, Mexico City	18-22 April	Symposium on water and sewage	40	—	—	200
NICARAGUA: National University of Nicaragua, Managua	11 July-6 Aug.	Ground water	117	5	3	27
	31 Oct.-12 Nov.	Oxidation ponds	27	2	1	22
PANAMA: University of Panama, Panama.	4-23 July	Well-drilling	85	7	2	32
	4-16 July	Pumps and pumping stations	48	11	1	18
PERU: National University of Engineering, Lima	11-16 July	Financing of sanitation works	30	2	4	18
	24 Oct.-4 Nov.	The use of electronic computers in sanitary engineering	46	3	1	32
TRINIDAD AND TOBAGO: University of the West Indies, Port-of-Spain	3-8 Oct. and 10-15 Oct.	a) Treatment of water and sewage; b) Chemistry of water and sewage	52	6	3	23
URUGUAY: University of the Republic of Uruguay, Montevideo	24-29 October	Use of plastic pipes in water supply systems	40	4	2	24
VENEZUELA: Central University of Venezuela, Caracas	23 May-2 July	Operation of water treatment plants	210	9	1	19
	1 Oct.-17 Dec.	Operation and design of pumping stations	44	3	—	32
Total		60 short courses, six seminars, and 1 symposium	4,225	342	82	1,831

— None.

. . . Data not available.

Nations Development Program, the U.S. Agency for International Development, and the Inter-American Development Bank. Two cooperative projects deserve special mention: (1) the agreement between PAHO and IDB to conduct joint programs in training and research activities, and (2) the agreement signed with the W. K. Kellogg Foundation to initiate a continental training program for sanitary engineers in the field of water fluoridation.

The next step toward strengthening university participation in these important activities will be the stimulation of applied research activities. The fact that the network of cooperating universities is already established will greatly facilitate the initiation of this research program. Exploratory contacts were made during 1966 for the purpose of surveying: (a) the physical facilities of engineering schools for carrying out an active applied research program; (b) the interest and capabilities of the staff with respect to research activities; (c) the local problems and priorities to be considered when planning applied research. The results of these surveys were being analyzed at the end of the year. Several requests for assistance in research projects were received from cooperating universities, and four different projects are currently under way: one in Brazil, two in Mexico, and one in Peru.

With the Organization acting as executing agency, the United Nations Special Fund is financing educational projects in Brazil and Venezuela.

In Brazil the UNSF continued to cooperate in the development of the Institute of Sanitary Engineering of SURSAN (Superintendency of Urbanization and Sanitation of Guanabara State), located in Rio de Janeiro, which will serve as a center for research and technical services and will develop graduate and undergraduate education programs at the Guanabara State University. The project reached essentially full operational level during the year. New quarters for the Institute were dedicated on the University campus. All major items of equipment for the new laboratories were received. Five PAHO consultants assisted in the training of staff and in placing new laboratory equipment in operation, and in reviewing program plans. Three short courses were conducted in addition to the basic sanitary engineering courses for civil engineering students at the State University. Two fellows returned from training to serve on the staff of the Institute, and seven others began or continued fellowship studies.

In Venezuela, continued progress was made in the UNSF-assisted project of sanitary engineering education, in which four universities are participating: the Central University of Venezuela and the Andrés Bello Catholic University, in Caracas; Zulia University, in Maracaibo;

and Los Andes University, in Mérida. The quality of the teaching and other technical staff acquired through the project has been exceptionally good. Physical facilities and equipment were provided for laboratories and classrooms. New buildings for the project were nearing completion at two of the universities, new laboratory space was equipped and occupied at another, and a new building was authorized and planned for the fourth university. Libraries were established or expanded and PAHO continued to award fellowships and provide consultant services.

At all of the four participating universities undergraduate instruction in sanitary engineering and sanitary sciences was being provided to civil engineering students. The number of students enrolled during the 1966 spring semester in the various courses offered through the project ranged from 415 in sanitary sciences at Los Andes University to 189 in hydraulics at the Central University, 18 in water supply, sewerage, hydraulics and sanitary sciences at Zulia University, and from 20 to 40 in various courses at the Catholic University. At the Central University a postgraduate program was developed during the year.

An interesting example of short-term technical training was the course on operation of water treatment plants organized at the Central University. Participants included supervisors of water treatment plants that have a total capital cost of more than \$16 million. Significant progress was made toward construction of the new water, sewerage and industrial waste pilot treatment plant facility. Land was acquired adjacent to the Central University and plans were drawn up for the pilot plant which will be used in connection with this and similar courses.

Dental Health

During the year PAHO specialized consultants assisted the dental schools in the Dominican Republic, El Salvador, Panama, and Paraguay in preparing their curricula, and the School of Dentistry of Zulia University in Maracaibo, Venezuela, in preparing an experimental teaching program.

Advice was given to the departments of preventive and social dentistry at the dental schools in Medellín, Colombia, San Salvador, El Salvador, and Caracas, Venezuela, in preparing their teaching programs in epidemiology and public health (Colombia); the social sciences (El Salvador); and extramural studies (Venezuela). The Organization assisted in establishing the Department of Preventive and Social Dentistry in the School of Dentistry at the University of Nicaragua, and the groundwork was

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laid for the establishment of similar departments at dental schools in Asunción, Paraguay, and Lima, Peru.

PAHO lent technical support to efforts to incorporate the preventive and social aspects of dentistry into the curricula of the Medical and Dental Schools of the University of Concepción, Chile, and the National University of Colombia, in Bogotá.

The Third Latin American Seminar on the Teaching of Dentistry, organized by PAHO in collaboration with the Brazilian Government and the W. K. Kellogg Foundation, was held from 28 November to 2 December in Petrópolis, Brazil, and was attended by 50 representatives of 47 dental schools in Argentina, Brazil, Paraguay, and Uruguay and 80 observers from 15 countries of the Hemisphere and one European country. The following subjects were discussed: increase in the supply of dental health literature and better utilization of libraries; training of auxiliary personnel; research in dental schools; and continuing education of dentists.

PAHO consultants collaborated with national personnel in a number of courses during the year. The Latin American Association of Dental Schools, with the cooperation of the Brazilian Government, the Kellogg Foundation, and PAHO, organized an international course on dental education which was held in Petrópolis in December and was attended by 130 professors from 18 countries. A consultant gave an advanced course, from 4 to 28 July, for 30 professors of oral microbiology at the Oswaldo Cruz Institute in Rio de Janeiro. The University of São Paulo was given assistance in preparing the program for the first international course on dental epidemiology and research design, which will be held at the International Center for Dental Epidemiology and Research (CIEPO) from 27 March to 6 May 1967.

A course on social sciences was given for the faculty of the School of Dentistry of the University of El Salvador, and in Nicaragua an intensive orientation course on dental health was offered to dental officers of the Ministry of Public Health. In Venezuela an intensive course on dental education was given at Zulia University, in Maracaibo.

To assist the countries in the education and training of dental auxiliary personnel, PAHO translated into Spanish and widely distributed specialized material on this subject. A consultant prepared a special report on the experiences of several countries in training this type of worker, also for distribution in Latin America. Sets of slides illustrating methods for making better use of such personnel were sent to 20 dental schools.

The University of Antioquia in Medellín, Colombia, received assistance in establishing regular courses for dental assistants and dental hygiene auxiliaries under a

program initiated during the year with the cooperation of the Kellogg Foundation.

Consultant services were made available to the Government of Venezuela in connection with preliminary studies on the possibility of establishing a national center for training and research, and standardization and quality control of dental materials. The project would be carried out with the participation of the universities, the Dental Association, and the Ministry of Health of Venezuela.

The Organization assisted the Government of Jamaica in the preparation of a plan of operations for a school for dental nurses which will be undertaken in 1967 with the cooperation of UNICEF.

The Organization also made a survey of the status of dental education in Argentina, Brazil, Paraguay, and Uruguay. The results will be published in 1967.

Assistance was given to the Latin American Association of Dental Schools in the development of its program of activities for the year, and in the preparation and holding of its third annual meeting, in Petrópolis, Brazil, from 2 to 6 December 1966, which was attended by representatives from the schools of dentistry of its 19 member countries.

Health Statistics

To assist the countries in meeting the needs for well-prepared statisticians in several specialized areas in the health field, the Organization continued to collaborate in programs for the training of statistical personnel at three levels: professional, intermediate, and auxiliary.

Professional-level education. The nine-month course for health statisticians at the School of Public Health of the University of Chile was completed by 15 students: six from Chile and nine PAHO fellows from other countries. The School also organized the first four-month course on health and population dynamics, which was attended by 25 persons from 11 countries and was designed to prepare faculty members of medical schools and other professionals to teach demography or conduct research on population problems.

At the School of Hygiene and Public Health of the University of São Paulo, Brazil, plans were made to begin courses on health and population in 1967; during 1966 several faculty members were receiving graduate training in demography to prepare them for teaching in this field. The curriculum was established for a new course for health statisticians to be started in 1967, and graduate training in medical statistics continued to be provided at the School for specialists from the Medical School.

Five PAHO fellowships were awarded for study at

academic institutions in the United States of America: two to students from Brazil (in demography) and three to students from Argentina and Jamaica (in health statistics). Two statisticians from Chile observed population centers and systems of health and hospital statistics at institutions in Europe and in the United States.

At the University of Chile a short-term consultant gave a four-week series of lectures on general experimental design to 50 research workers, and participated in a series of seminars on various aspects of advanced statistics. In Lima, Peru, this consultant presented lectures (one week) on bioassay to the faculty of the Cayetano Heredia Medical School. In Argentina the national health services, in cooperation with several schools of medicine, organized five short courses in statistical methodology for 135 clinicians and medical investigators.

At the Faculty of Medicine of the University of the West Indies in Jamaica, the courses in biostatistics for preclinical and clinical students in the Department of Social and Preventive Medicine were revised to cover the use of statistics in community health programs. The annual two-week seminar on experimental statistics was held for physicians conducting medical research programs.

All these activities have aroused interest in many countries in the establishment of departments of statistics in medical schools to provide both instruction for undergraduates and consultation to other departments on the design and analysis of research projects.

Intermediate-level training. Intermediate courses in statistics (3 to 10 months), for personnel of health services and hospitals who had completed secondary education, were given in seven countries in 1966 (Table 24); the 174 students were from 12 countries and eight other areas. Almost all the courses provided training in both health and hospital statistics, including theory and practice.

In Argentina the following estimates were made of the statistical personnel who will have to be trained in the next five years to meet the minimum needs: 41 professional statisticians, 401 statistical technicians, and 7,125 auxiliary personnel. The qualifications and functions for each category were defined and plans were outlined for courses and inservice training. As a first step, two nine-month intermediate-level courses were organized in 1966 at the School of Public Health of Buenos Aires University: the

TABLE 24. STATISTICIANS TRAINED AT THE INTERMEDIATE LEVEL IN THE AMERICAS, BY COUNTRY OF ORIGIN, 1966

Country of origin	Place of study							Total
	Argentina 9 months	Colombia 6 months	Cuba 6 months	Jamaica 3 months	Mexico 10 months	Paraguay 6 months	Peru ^a 8 months	
Argentina.....	56 ^b	—	—	—	—	—	—	56
Barbados.....	—	—	—	4	—	—	—	4
Colombia.....	—	18	—	—	—	—	—	18
Costa Rica.....	—	1	—	—	—	—	—	1
Cuba.....	—	—	15	—	—	—	—	15
Guatemala.....	—	—	—	—	1	—	—	1
Honduras.....	—	—	—	—	1	—	—	1
Jamaica.....	—	—	—	15	—	—	—	15
Mexico.....	—	—	—	—	18	—	—	18
Panama.....	—	2	—	—	—	—	—	2
Paraguay.....	—	—	—	—	—	16	—	16
Peru.....	—	—	—	—	—	—	19	19
Antigua.....	—	—	—	1	—	—	—	1
Bermuda.....	—	—	—	1	—	—	—	1
British Honduras.....	—	—	—	1	—	—	—	1
Dominica.....	—	—	—	1	—	—	—	1
Grenada.....	—	—	—	1	—	—	—	1
Montserrat.....	—	—	—	1	—	—	—	1
St. Vincent.....	—	—	—	1	—	—	—	1
Virgin Islands (U.K.).....	—	—	—	1	—	—	—	1
Total.....	56	21	15	27	20	16	19	174

— None.

^a Six-month regular and two-month extension.

^b Two courses.

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first in March for 23 students and the second in November for 33.

At the course in the School of Public Health of the University of Antioquia in Medellín, Colombia, 21 students were enrolled, including one from Costa Rica and two from Panama. A three-month course at the Faculty of Medicine of the University of the West Indies, in Kingston, provided training for 27 students (15 from Jamaica, 11 from other English-speaking islands of the Caribbean, and one from British Honduras). In Mexico 20 intermediate-level personnel were trained in the School of Public Health, including two PAHO fellowship students from Guatemala and Honduras. Courses were also given in Cuba, Paraguay, and Peru for national personnel.

Training in hospital statistics was expanded considerably. In addition to the instruction in medical records and hospital statistics given as part of the intermediate-level courses, several special courses were begun. In Costa Rica a four-month course was conducted in the Ministry of Public Health for 14 students, including three PAHO fellows from other countries, and plans were made to continue it as an annual international course. In Peru the regular six-month intermediate course in the School of Public Health was lengthened by two months to add instruction in medical records.

The annual 11-month course in medical records conducted by the Ministry of Health in Venezuela had 23 students, including two from other countries studying on PAHO fellowships.

During the year PAHO gave considerable support to the training in medical records and hospital statistics, in both the intermediate and the special courses, by providing books and other teaching materials and advisory services. This was made possible in part by a grant from the W. K. Kellogg Foundation. PAHO also began to issue a new series of mimeographed documents for use in these training programs; they include selected papers on medical records and statistics, published in English, which are translated into Spanish for distribution to teaching centers and interested persons and institutions throughout Latin America.

Auxiliary-level training. A total of 848 auxiliary statistical personnel were trained in 32 courses given in 13 countries in 1966 (Table 25).

The courses varied in length from one week to four months, with a median duration of four weeks. Eight countries conducted courses on medical records and hospital statistics, two on health statistics, and four gave combined courses on health and hospital statistics. It is expected that training at this level will be expanded considerably in future years, since the large numbers of personnel needed for recording and tabulating data in health centers and hospitals can be obtained rapidly by this means.

Courses on classification of diseases. The Latin American Center for Classification of Diseases (Caracas, Venezuela) continued to conduct courses in the various countries on the use of the International Classification. During 1966 classes on the Classification formed part of

TABLE 25. AUXILIARY STATISTICAL PERSONNEL TRAINED IN THE AMERICAS, 1966

Country	Number of courses	Duration	Number trained	Type of training
Argentina.....	6	1-6 weeks	175	Hospital statistics
	1	3 weeks	7	Tuberculosis records and statistics
Bolivia.....	1	4 weeks	44	Hospital records and statistics
Brazil.....	1	4 weeks	23	Health statistics
	1	7 weeks	...	Health statistics
	1	...	...	Health statistics
Chile.....	8	2 weeks	70	Hospital statistics
Cuba.....	...	23 weeks	166	Health statistics
Dominican Republic....	1	2 weeks	35	Hospital statistics
Guyana.....	1	4 weeks	12	Medical records
Nicaragua.....	1	4 weeks	50	Health center and hospital statistics
Panama.....	1	3 weeks	45	Health center and hospital statistics
Paraguay.....	2	2 weeks	30	Morbidity reporting and hospital statistics
Peru.....	2	3 months	44	Health statistics and hospital records
	1	3.5 months	25	Hospital records
Uruguay.....	1	6 weeks	30	Medical records
Venezuela.....	3	4 months	92	Medical records
Total.....	32 ^a		848 ^a	

... Data not available.

^a Total excludes courses for which information was not available.

most intermediate-level courses on health and hospital statistics. The Center provided teaching materials to the schools of public health for these courses. In addition, staff of the Center gave three weeks of instruction on the Classification as part of the intermediate-level course at the University of the West Indies, and conducted a two-week course in Santa Fe, Argentina, for 36 coders.

Malaria

During 1966 a course in malaria epidemiology for PAHO malaria eradication engineers was conducted in Atlanta, Georgia, jointly by PAHO and the Communicable Disease Center of the U.S. Public Health Service.

PAHO/WHO assisted Brazil in organizing the malaria training section and the center attached to it.

Information on techniques and methodology was exchanged at the XIV Meeting of Directors of National Malaria Eradication Services of the Caribbean, Central America, Mexico, and Panama, which was held in San José, Costa Rica, from 16 to 20 August 1966, and at the VI Meeting of Directors of National Malaria Eradication Services of South America, held in Maracay, Venezuela, from 28 November to 3 December.

During the year, PAHO consultants participated in the training activities within the national malaria eradication services. Partial information on the number and various categories of persons trained in such courses, and on the duration of the courses, is presented in Table 26.

Personnel from the newly-expanded malaria section of the Communicable Disease Center of the U.S. Public Health Service were briefed at the PAHO Headquarters in Washington, on the techniques for the collection and handling of data used for the continuous evaluation of national eradication programs.

The 23rd International Course on Malaria and Environmental Sanitation was held in Maracay, Venezuela, from 17 January to 31 May. It was attended by 33 students, 19 from Venezuela and 14 from other countries.

Leprosy

During the year the Organization assisted in preparing plans for a course on the administration of leprosy control programs for directors of national and state programs which is to be held in Venezuela in 1967. A private institution in the United States of America will assist in financing the course, while other private institutions will help with the teaching. To ensure the success of the course, a demonstration area will be prepared, in which the theoretical part can be put into practice.

The Government of Venezuela was awarded fellowships for studies on the biochemistry of the leprosy bacillus and for training a hand and foot surgeon in the rehabilitation of leprosy patients.

In Ecuador PAHO helped organize the first post-graduate course on leprology, which was conducted jointly by the School of Medicine of the Central University, the Dermatological Society, and the National Leprosy Service. A medical officer attached to the leprosy control program also received an Organization fellowship to attend a complete public health course in Chile, and an orthopedic technician was awarded a fellowship for a course on orthopedic prosthesis in Brazil.

General Health Services

The activities of the general health services in the training of personnel have been expanded considerably and their areas of operation have been increasingly used as practice fields by individuals attending various types of courses, principally trainees from nursing, hospital administration, statistics, dietetics, and communicable disease control services.

All of the general health services made consistent efforts to participate in, or take responsibility for, the training of their own staff as well as of other personnel and community leaders. Information received from 19 general health services projects in operation in various countries indicated that 4,061 persons received training. A total of 111 training periods were organized in which the following participated: 641 nursing auxiliaries, 186 sanitary inspectors, 200 intermediate-level and hospital statisticians, and 52 laboratory technicians; 471 persons who received specific or general orientation in communicable disease control; 388 community leaders; and 619 persons who were given general orientation in public health.

Administrative Methods and Practices

The Organization continued to assist the Governments in the training of personnel as one of the main phases of its program for the improvement of administrative methods and practices of health services.

With the cooperation of the Ministry of Public Health of Chile and the Administration Institute (INSORA) of the University of Chile, a second four-month course was held for administrative personnel of health services. Of the 20 participants, seven were from the Chilean National

TABLE 26. TRAINING COURSES OF THE NATIONAL MALARIA ERADICATION SERVICES, 1966^a

Type of trainees	Bolivia		Brazil ^b		Costa Rica		Dominican Republic		Guatemala		Guyana		Honduras		Mexico		Nicaragua		Surinam	
	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons	Duration (weeks)	No. of persons
Zone and sector chiefs.....	—	—	—	—	1	28	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brigade chiefs.....	—	—	—	—	—	—	—	—	1	106	—	—	—	—	—	—	—	—	—	—
Inspectors.....	2	16	12	43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Evaluators and drug distributors.....	—	—	—	—	1	118	—	—	2	101	—	—	—	—	—	—	—	—	—	—
Spraymen.....	—	—	—	—	—	—	—	—	—	—	—	1	3	—	—	—	—	—	—	—
Administrators.....	—	—	3	24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Statistical clerks.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Health education auxiliaries.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Entomology auxiliaries.....	—	—	8	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Microscopists.....	—	—	3 ^c	8 ^c	—	—	—	—	3	14	—	—	—	—	—	—	—	—	—	—
Medicated salt plant workers.....	—	—	8	62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

— None.
 Information not available.
^a Partial information.
^b Federal.
^c Microscopists' supervisors.
^d Microscopists of the general health services.

Health Service and 13 from Argentina, Brazil, Colombia, Paraguay, Peru, and Venezuela.

A 10-week course for intermediate-level administrative personnel of health services in the Caribbean area was held in Port-of-Spain, Trinidad, under the sponsorship of the Government, the University of the West Indies (Jamaica), and PAHO. Students from nine countries and other areas attended.

Two one-month courses were held for administrative officials of the Ministry of Public Health and Social Welfare of Peru under the joint sponsorship of the Government and PAHO and with the cooperation of the School of Public Health. The main elements covered were: principles of organization and public administration, principles of public health, budget and finance administration, personnel administration, supply and general services, administrative rationalization, and hospital administration.

In Paraguay the first course (two months) for administrative staff of the Ministry of Public Health and Social Welfare was organized in 1966, with the cooperation of PAHO; 29 administrative officials participated.

To further strengthen the administrative services in the ministries of health, 39 fellowships were awarded by the Organization to key administrative officials from the following countries and areas: Argentina 6, Barbados 2, Brazil 2, Chile 2, Colombia 2, Dominican Republic 1, El Salvador 5, Guatemala 1, Jamaica 2, Panama 1, Paraguay 3, Peru 2, Surinam 1, Trinidad and Tobago 2, Uruguay 1, and one each to Antigua, Bermuda, Dominica, Grenada, St. Kitts, and St. Lucia.

As in past years, the Organization provided administrative training to officials of the national malaria eradication campaigns and the water supply programs throughout the Hemisphere.

Public Health Laboratories

In Argentina a course on laboratory methods for the diagnosis of venereal diseases, organized by the National Institute of Microbiology of Buenos Aires with the cooperation of PAHO and of the Communicable Disease Center of the U.S. Public Health Service, was held from 17 to 28 October. The instruction was given by members of the Institute, assisted by two short-term PAHO consultants. The Organization provided the necessary equipment and materials. Twenty-one students attended: 18 from several provinces of Argentina and three PAHO fellows (two from Brazil and one from Peru).

Two one-week courses on the laboratory diagnosis of smallpox were held in Brazil from 16 to 29 September.

They were organized by PAHO with the cooperation of the Adolfo Lutz Institute, the Department of Health and Welfare of São Paulo State, and the U.S. Communicable Disease Center, and were attended by 15 persons: three from Argentina, four from Brazil, and one each from Chile, Colombia, Costa Rica, Cuba, Ecuador, Mexico, Peru, and Venezuela.

In Jamaica the third course for laboratory technicians, sponsored by the University of the West Indies and the Organization, was attended by 10 participants from the Caribbean area, six of them on PAHO fellowships.

A course on enteric bacteriology and cholera diagnosis was given in the United States of America under the auspices of PAHO and the Communicable Disease Center. It was attended by participants from Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Haiti, Jamaica, Mexico, Peru, and Uruguay.

In Caracas, Venezuela, a four-week course on tuberculosis bacteriology sponsored by the Ministry of Health and Social Welfare and the Organization was held in January-February. It was attended by eight PAHO fellows from Chile, Colombia, Ecuador, Mexico, Peru, and Venezuela.

Maternal and Child Health

A meeting of the PAHO Advisory Group on Pediatric Education was held in Washington, D.C., from 6 to 8 June 1966. The participants included professors of pediatrics from several countries of the Americas. The group recommended that the Organization develop an expanded program of assistance to pediatric education in Latin America based upon three key activities: (a) strengthening of the patient care services of teaching hospitals (especially in the areas of pediatric nursing and pediatric residency training); (b) strengthening of urban and rural community health service areas in order to develop them as facilities for teaching in pediatrics as well as in other clinical fields; and (c) strengthening of continuing education in pediatrics in universities, in both clinical and preventive and social aspects, in order to improve health care services to the community.

These recommendations are consonant with the over-all policy of the Organization. They are also reflected in the activities of the PAHO/UNICEF project of assistance to pediatric education in the Medical School of the University of Recife, Brazil, which commenced in 1963 as a program of continuing education for the physicians of that region (Brazil-6202). More than 100 physicians have received some special training in pediatrics in the School. In 1966, with the assistance of the School's Department of Preventive Medicine, a health center serving the com-

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munity was taken over for teaching purposes; also, the pediatric residency training program was strengthened. A PAHO adviser in pediatric education for northeastern Brazil was assigned to the project, with duty station in Recife, and the activities are also receiving support from the Josiah Macy, Jr. Foundation. It is expected that this program will become a center for faculty training in pediatrics and preventive medicine for the schools of the northeastern region of Brazil, as well as for continuing education for the physicians of the area.

Two international training centers sponsored and supported by the Organization each provide a three-month course in clinical and social pediatrics: one in Medellin, Colombia (University of Antioquia), and the other in Santiago, Chile (University of Chile). Both centers functioned at capacity and attracted pediatric faculty members from many Latin American countries. In addition to four national fellows from each host country, 33 international fellows attended the courses in 1966. At

least two smaller courses (in Argentina and Brazil) are known to have been organized in 1966 by fellows who had participated in the courses in earlier years.

Nutrition

The lack of awareness of fundamental nutrition problems on the part of individuals in many fields of endeavor, compounded by the serious shortage of well-trained professional nutritionists, accounted for many difficulties encountered by the countries in their activities in this field. The demand for qualified staff and for assistance from the Organization in developing effective educational tools and techniques has been increasing constantly.

In an effort to cope with the problem and find ways to meet the need for qualified professionals, PAHO organized the Conference on the Training of Public Health Nutritionists-Dietitians, which took place in Caracas, Venezuela,



Participants in the meeting of the PAHO Advisory Group on Pediatric Education, held in Washington, D.C., 6-8 June 1966.

from 25 to 30 July 1966. Participants included the directors of 19 of the 23 schools of dietetics in Latin America. The discussion centered on the preparation of professional nutritionists-dietitians to work in integrated health services and resulted in the drafting of a plan for training this type of worker at the university level in a four-year program of study, including three years of academic training and one year of supervised field work. Prior to the meeting, two of the schools had been offering four-year programs leading to a university degree; other schools trained dietitians in courses varying from one to three years' duration. Following the Conference three additional schools reported revision of their curricula to conform to the recommendations of the Conference. The proceedings of the Conference were compiled for publication.*

PAHO provided technical assistance in connection with the Conference on the Teaching of Nutrition in Schools of Medicine and Schools of Public Health, held in September in Washington, D.C., under the sponsorship of the U.S. Agency for International Development. There were 20 participants from nine Latin American countries, in addition to participants from the United States of America.

In Brazil, short courses in nutrition for public health physicians were conducted at the Universities of Pará, Minas Gerais, Rio Grande do Norte, and São Paulo, with the assistance of the Organization. A total of 71 persons attended.

INCAP continued its 11-month course in applied nutrition for Latin American dietitians and its 10-week summer course on nutrition in public health for physicians and health professionals. In January, it admitted the first students from Central America for the four-year university-degree course in nutrition and dietetics. Details of the INCAP education and training program are given in Chapter II of this *Report* (under Nutrition).

A total of 26 academic and short-term fellowships were awarded in the field of nutrition, including several for training in endemic goiter and nutritional anemias as part of the collaborative studies carried out under PAHO auspices.

To support the education and training activities in the countries, the Organization completed the translation into Spanish of the comprehensive handbook on nutrition entitled *Nutrición humana*, which was issued as Scientific Publication PAHO 146 and is being widely distributed. A nutrition manual for nurses was also prepared and will be published in 1967.

* Published in Spanish in the *Boletín de la Oficina Sanitaria Panamericana*, Vol. LXII, No. 4 (April 1967); they will be distributed also as a separate publication.

Mental Health

During the year preparations were made for a seminar on the teaching of psychiatry and mental health in Latin American medical schools, to be held in 1967. In the latter part of 1966 a group of consultants met in Washington, D.C., to draw up a general outline for the seminar and they subsequently visited a number of countries to interview professors specializing in this field and seek their opinion on the subjects to be dealt with at the meeting.

In Kingston, Jamaica, a short-term consultant assisted the Ministry of Health in implementing a national mental health program, drawn up the year before, which included, among other points, the preparation of plans for giving training in mental health to general practitioners. Four nurses from Bellevue Hospital completed a three-month course on community mental health, organized in accordance with the consultant's recommendations.

In Venezuela, nine graduate nurses completed a post-basic course in psychiatry given by the Ministry of Health and Social Welfare with the cooperation of the Organization.

Four copies of a film in Spanish, entitled "Psychiatric Nursing" were acquired and will be furnished, on loan, to nursing schools.

Radiation Protection

To assist the Latin American countries in promoting the use of radioisotopes in medicine for diagnosis, therapy, and research, fellowships were granted to three specialists from Argentina, El Salvador, and Mexico to attend the seven-month course conducted at the Salvador Hospital in Santiago, in association with the University of Chile. The fellows were trained in the general clinical applications of radioisotopes and in specialized applications in gastroenterology, endocrinology, cancerology, hematology, cardiology, urology, and renography. This was the fifth successive year in which the training program was conducted, and it is hoped that it will be extended for at least three more years, with some important changes in training procedures.

Seven short-term fellowships were awarded in 1966 for the following studies in various countries: radiation effects in plant genetics and cytology (one fellow from Brazil); radiochemistry and radiation protection (one from Ecuador); radiochemistry (one from Brazil); radiation protection (one from Mexico); radiological health (three from Brazil, Mexico, and Venezuela).

The Organization cooperated with the WHO in conducting the International Course on Radiological Health

Inspections, held in November 1966 at the Radiation Laboratory of the U.S. Public Health Service, in Rockville, Maryland. Participants from all six Regions of WHO were present, representing 17 different countries, including two Latin American countries. The Washington Office worked closely with the USPHS in planning the field program for most of the participants.

Further distribution was made of three Spanish-language sound films produced by the Organization, which illustrate the fundamentals of radiation physics, radiobiology, radiation protection, and medical uses of ionizing radiation, and are being made available as teaching media to schools, hospitals, and professional societies throughout Latin America.

As part of its program to make current technical literature available for training purposes, the Organization further updated in 1966 the Spanish edition of the USPHS training course manual *Basic Radiological Health*. In accordance with the standing agreement with the American College of Radiology, PAHO distributed in Latin America several additional thousand copies of the Spanish translation of *A Practical Manual on the Medical and Dental Use of X-Rays with Control of Radiation Hazards*, prepared by the College, and sent additional copies of the English edition to Jamaica and Trinidad.

The Organization translated into Spanish a training manual of the USPHS Division of Radiological Health entitled *Basic Science Review*, which provides an excellent summary of the principles of mathematics, chemistry, biology, and physics necessary for a proper understanding of the subject of radiation and its applications. Discussions were held with the USPHS with a view to having the Spanish text printed by that Service and distributed through PAHO to the countries of Latin America.

Planning

The training of health planners at both the international and the national levels continued to be a major activity of the Organization.

The fifth international Spanish-language course in health planning was held in conjunction with the Latin American Institute for Economic and Social Planning in Santiago, Chile, from 12 September to 16 December 1966. Thirty-six participants from the following countries attended: Argentina 3, Bolivia 2, Brazil 5, Chile 7, Colombia 4, the Dominican Republic 2, Ecuador 2, El Salvador 1, Honduras 1, Paraguay 2, Peru 1, Portugal 1, Uruguay 2, and Venezuela 3.

The group comprised 32 medical officers, 1 dentist, 1 nurse, and 2 engineers.

In all, 402 hours of instruction were given: 129 of lectures, 69 of seminars, and 204 of field work.

The fourth international English-language course in health planning was held at the Johns Hopkins University, Baltimore, Maryland, U.S.A., from April to June. A PAHO staff member assisted in the teaching program.

The Organization assisted in the training of national planners in Argentina, Bolivia, Brazil, Chile, Nicaragua, Trinidad and Tobago, and Venezuela.

Staff members from Headquarters and all six Zones gave lectures, conducted short courses, and led seminar discussions on planning strategy and methodology for students at schools of public health, for participants in inservice training programs in ministries of health, and for members of medical and paramedical groups in various countries.

Fellowships

The Governments of the Organization continued to take great interest in and make increased use of the program of fellowships for the training of their health service staff and their teachers of schools of medicine and related sciences.

All countries of the Hemisphere received fellowships (Table 27), which formed an integral part of the projects and programs sponsored by the Governments and the Organization.

In 1966, 854 fellowships were awarded, and while that represents only a 3 per cent increase over the 830 awarded in 1965, the total was the highest number awarded since the inception of the program. Since 1959, when 505 fellowships were granted, the program has increased by 69 per cent.

The 854 fellowships awarded in 1966 represent a total of 3,993 months, or an average of 4.7 months per fellowship, a suitable average considering that 64 per cent of them were short-term fellowships. In addition, 44 extensions, representing 107 months, were authorized.

Table 27 shows the distribution by type of training. The largest percentage (37.7) went to fellowships for special short courses. Long-term academic fellowships represented 27.5 per cent, and travel grants for observation trips, 26.3 per cent. In addition to the courses organized by or in cooperation with PAHO/WHO, there were 72 fellowships for nonacademic studies of various kinds and duration (8.4 per cent). About 52 per cent of all fellows attended courses given under Organization auspices.

The distribution by subject matter (Table 28) was in accordance with the priorities established in the Organi-

TABLE 27. FELLOWSHIPS AWARDED IN THE AMERICAS, BY COUNTRY OF ORIGIN AND TYPE OF TRAINING, 1966

Country of origin of fellows	Type of training					Total
	Courses organized or assisted by PAHO or WHO			Regular academic courses	Travel grants and other awards	
	Short group courses	Non-academic	Academic			
Argentina.....	27	5	3	26	13	74
Bolivia.....	18	3	—	13	1	35
Brazil.....	24	6	1	10	20	61
Canada.....	—	—	—	1	2	3
Chile.....	8	3	—	2	25	38
Colombia.....	14	5	4	8	8	39
Costa Rica.....	10	4	1	9	3	27
Cuba.....	8	2	1	12	11	34
Dominican Republic.....	6	3	2	7	4	22
Ecuador.....	19	1	1	15	5	41
El Salvador.....	24	4	4	5	17	54
Guatemala.....	7	1	—	6	7	21
Haiti.....	1	1	—	—	2	4
Honduras.....	6	1	3	7	4	21
Jamaica.....	6	—	—	5	7	18
Mexico.....	15	3	2	3	15	38
Nicaragua.....	5	2	3	9	7	26
Panama.....	16	5	1	4	7	33
Paraguay.....	6	6	—	1	1	14
Peru.....	12	6	2	9	10	39
Trinidad and Tobago.....	12	—	4	5	—	21
United States of America.....	—	—	—	—	18	18
Uruguay.....	8	6	—	2	6	22
Venezuela.....	21	4	6	16	23	70
British territories ^a	49	1	11	10	7	78
Surinam and the Netherlands Antilles.....	—	—	—	1	2	3
Total.....	322	72	49	186	225	854

— None.
^a Of these, 2 are from British Honduras.

zation's program and budget. Fellowships for medical education and related sciences were predominant with 21.8 per cent, followed by: nursing, 20.7 per cent; health services organization, 16.2 per cent; communicable diseases, 14.9 per cent; other health services, 11.3 per cent; environmental sanitation, 10.4 per cent; maternal and child health, 3.7 per cent; and clinical medicine, 0.8 per cent.

Compared with 1965, the percentage of fellowships for environmental sanitation decreased from 16.7 to 10.4 in 1966 (from 139 to 89 awards) because of the smaller number of requests for fellowships for attendance at courses sponsored by the Organization. On the other hand, nursing fellowships showed a marked increase (from 13 to 20.7 per cent), as did those for medical education and related sciences (from 16.4 to 21.7 per cent). Percentages for other subjects remained more or less constant. However, fellowships for studies in

health organization increased from 108 to 138 (by 27.8 per cent), those for nursing from 108 to 177 (63.9 per cent), and for medical education and related sciences from 155 to 186 (20 per cent).

Of the fellowships awarded to teachers of schools of public health, medicine, and related sciences (Table 29), 13.9 per cent were for teachers of public health schools, and 74.1 per cent for teachers of medical schools; 15.2 per cent of the latter attended the courses on pedagogical methods in medical education given in: Santiago, Chile; San José, Costa Rica; Tegucigalpa, Honduras; and Montevideo, Uruguay (two courses); 5.3 per cent of these fellowships went to teachers of dental schools, 2.1 per cent to teachers of veterinary medical schools, and 4.3 per cent to teachers of sanitary engineering. Fellowships for medical training and related sciences continued to receive high priority, and their number will no doubt increase in future years. It should be noted that 28.8 per cent of all

TABLE 28. FELLOWSHIPS AWARDED IN THE AMERICAS, BY FIELD OF STUDY AND COUNTRY OF ORIGIN, 1966

Field of study	Country of origin of fellows																			Total								
	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Honduras	Jamaica	Mexico	Nicaragua	Panama	Paraguay		Peru	Trinidad and Tobago	United States of America	Uruguay	Venezuela	British territories	Surinam and the Netherlands Antilles	
Health organization	5	8	2	—	1	—	2	9	4	6	2	3	—	2	1	3	1	—	—	1	—	—	—	—	3	1	—	56
Public health administration	4	—	1	—	—	—	—	—	—	—	—	1	—	1	1	1	2	—	—	—	1	—	—	—	—	—	17	
Hospital and medical administration	11	2	7	—	3	5	—	1	2	2	2	—	—	1	3	1	1	1	5	—	4	—	3	—	—	8	65	
Sanitation	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	6	
Sanitary inspection	4	1	—	—	2	—	1	2	2	1	5	—	—	3	—	—	3	—	—	—	3	—	4	10	1	—	49	
Sanitary engineering	—	—	—	—	5	—	1	4	4	—	4	—	—	1	1	4	—	2	—	—	—	2	—	—	—	34		
Other	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nursing	1	1	4	1	—	—	2	4	4	3	5	5	—	—	1	4	—	—	—	—	—	3	1	3	4	—	49	
Nursing education	1	—	—	—	—	—	—	—	—	2	—	—	—	1	1	—	—	—	—	—	—	2	—	1	5	1	14	
Public health nursing	3	13	—	—	1	2	2	1	1	10	14	1	1	2	1	—	—	—	—	—	—	12	—	—	3	30	114	
Nursing services	7	2	3	1	2	—	1	4	1	1	—	—	—	—	—	1	1	3	—	3	—	—	—	—	—	32		
Maternal and child health	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Other health services	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mental health	1	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	
Health education	2	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	
Occupational health	1	1	1	—	—	—	3	—	—	2	1	—	—	—	—	2	1	—	—	—	—	—	—	—	—	—	14	
Nutrition	4	1	—	—	—	2	2	—	—	—	1	1	1	1	1	1	2	2	1	2	2	1	1	1	4	—	26	
Health statistics	2	—	—	—	—	2	1	—	—	—	1	1	—	1	1	—	2	4	—	—	—	—	—	—	—	—	30	
Dental care	—	1	—	—	—	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	2	—	7	
Rehabilitation	—	—	—	—	1	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	
Communicable diseases	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Malaria	1	—	4	—	—	—	1	—	1	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	11	
Tuberculosis	—	—	1	—	1	—	2	—	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	10	
Zoonoses	—	—	2	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	
Foot-and-mouth disease	2	1	4	—	1	3	—	—	—	2	—	—	—	1	—	—	—	—	—	—	—	—	2	—	—	—	16	
Leprosy	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	
Other communicable diseases	3	—	1	—	3	4	2	2	—	1	1	—	1	1	1	3	1	—	—	3	1	—	1	2	1	—	30	
Laboratory services	3	1	6	—	1	1	1	2	5	4	—	2	—	1	—	2	3	—	—	2	4	—	2	3	6	—	51	
Veterinary public health	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	
Medical education and related sciences	15	3	18	1	15	19	4	4	1	4	13	7	—	5	6	12	6	4	2	—	14	—	—	27	—	—	186	
Clinical medicine	1	—	2	—	—	—	—	—	—	—	—	—	1	—	—	2	—	—	—	—	—	—	—	—	—	—	7	
Total	74	35	61	3	38	39	27	34	22	41	54	21	4	21	18	38	26	33	14	39	21	18	22	70	78 ^a	3	894	

— None.

^a Of these, 2 are from British Honduras.

TABLE 29. FELLOWSHIPS AWARDED TO PROFESSORS OF SCHOOLS OF PUBLIC HEALTH, SCHOOLS OF MEDICINE AND RELATED SCIENCES,
BY FIELD OF STUDY AND COUNTRY OF ORIGIN, 1966

Field of study	Country of origin of fellows																Total						
	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Honduras	Jamaica	Mexico	Nicaragua		Panama	Paraguay	Peru	United States of America	Venezuela	
Organization of public health teaching																							
Demography																							
Epidemiology	1							1															
Health education																							
Hospital administration			1																				
Industrial hygiene																							
Microbiology																							
Nutrition	1		2																				
Occupational medicine					1																		
Public health planning			3																				
Public health teaching	1														1								
Statistics						1																	
Organization of medical education																							
Anesthesiology																1							
Biochemistry			1			2				1													
Communicable diseases	3				2					1													
Cytology					2																		
Demography			1			3				1													
Food analysis						1																	
Human genetics						1																	
Maternal and child health						1																	
Medical education teaching					2	1				2					3								
Mental health	2	1	3			1				1													
Microbiology						2																	
Morphology	1					1																	
Mycology						1																	
Nutrition			1		1	1				1													
Obstetrics						1																	
Parasitology																							
Pathology	1					2																	
Pediatrics			1		1	2							2										
Pharmacology						2																	
Physiology																							
Preventive medicine			1																				
Radiochemistry					1																		
School health					1																		
Surgery						1																	
Use of radioisotopes					3	1																	
Laboratory in human relations	1																						
Organization of dental education	2									3					1								
Organization of veterinary medical education	1									2													
Organization of sanitary engineering education																							
Total	15	3	18	1	15	19	4	4	1	4	13	7	5	6	12	6	4	2	14	6	27	186	

— None.

TABLE 30. FELLOWSHIPS AWARDED IN THE AMERICAS, BY COUNTRY OF ORIGIN AND BY COUNTRY OR REGION OF STUDY, 1966

Country of origin	Countries of study in the Region of the Americas																Other Regions of study									
	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Ecuador	El Salvador	Guatemala	Honduras	Jamaica	Mexico	Nicaragua	Panama	Peru	Trinidad and Tobago	United States of America	Uruguay	Venezuela	British territories	Africa	Eastern Mediterranean	Europe	South-East Asia	Western Pacific
Argentina	—	—	—	—	26	5	2	1	1	5	—	—	2	—	—	—	—	14	2	6	—	—	—	5	—	—
Bolivia	—	—	—	—	7	2	—	—	—	1	—	—	2	—	—	13	—	1	—	2	—	—	—	—	—	—
Brazil	5	4	7	—	13	6	—	—	—	2	—	4	—	—	—	4	—	18	—	6	—	—	2	4	—	—
Canada	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chile	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Colombia	—	—	—	—	18	—	2	—	—	2	—	—	5	—	—	4	—	18	1	5	—	—	1	12	1	—
Costa Rica	—	—	—	—	2	—	—	—	—	3	—	—	3	—	—	2	—	4	—	5	—	—	—	2	2	—
Cuba	—	—	—	—	11	—	—	—	—	—	—	—	21	—	—	—	—	—	—	—	—	—	—	—	—	—
Dominican Republic	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ecuador	—	—	—	—	3	—	—	—	—	—	—	—	10	—	—	4	—	—	—	—	—	—	—	—	—	—
El Salvador	—	—	—	—	7	—	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—
Guatemala	—	—	—	—	4	—	—	—	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—
Haiti	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Honduras	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Jamaica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mexico	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nicaragua	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Panama	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paraguay	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Peru	—	—	—	—	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trinidad and Tobago	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
United States of America	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Uruguay	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Venezuela	—	—	—	—	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
British territories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Surinam and the Netherlands Antilles	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	21	4	93	11	163	62	21	4	13	47	8	35	84	24	8	47	12	144	6	57	40	1	6	80	5	4

— None.

travel grants and 21.5 per cent of fellowships for academic studies were awarded to teachers.

One of the basic activities of the fellowships program is the selection of the place of study, to which the specific needs of each fellow must be adapted. Experience has shown that most fellows will derive greater benefits if they study in countries in which the language, government organization, health problems, and living conditions are similar to those of their own countries. Accordingly, as Table 30 shows, 66 per cent of all studies and observation visits took place in countries of Latin America, 15 per cent in the United States of America and Canada, 9 per cent in Jamaica, Trinidad and Tobago, and the British territories, and 10 per cent in other regions of the world.

Fellowships distribution by profession or occupation appears in Table 31 and reflects closely the training needs indicated by each Government. As in previous years, 95.5 per cent of all fellowships were awarded to professional staff of various kinds, and 4.5 per cent to nonprofessional personnel. Predominant among the professions were the physicians, with 42 per cent of all fellowships, followed by nurses (22 per cent), engineers (9 per cent), veterinarians (3 per cent), dentists (2 per cent), and the remaining professionals (22 per cent).

The difference in the number of nursing fellowships shown in Table 28 (177) and in Table 31 (180) is only apparent, because 180 nurses did in fact receive fellowships, but three of them were classified under the headings of health education, rehabilitation, and clinical medicine. Similarly, Table 29 contains four veterinarians and 10 dentists listed as teachers, all of whom do not appear under their own specialties in Table 28.

The planning and supervision of studies of the fellows coming from other WHO Regional Offices to the Americas continued in the usual manner. Table 32 shows in detail their Region of origin, subjects, and field of study. In

comparison with 1965, the number of such fellows increased by 20.9 per cent (from 158 to 191). All Regional Offices sent more fellows during the period, the greatest increase being in those from Africa, whose number more than doubled (from 17 to 36). Nevertheless, the largest number of fellows (26 per cent) was sent by the Western Pacific Regional Office. Some 42 per cent of the fellows from the Regional Offices attended academic courses, 44 per cent made observation visits, and 14 per cent attended two Organization-promoted courses, one on computer use in human genetics, and the other on radiological health. Most of the studies (94 per cent) took place in the United States and Canada, and the remainder in several countries of the Americas. It is interesting to note that there was a significant increase (from 2 to 13) in the number of fellows from Africa who took environmental sanitation subjects.

Tables 27 to 32 refer exclusively to the 854 fellowships awarded during 1966, and to the 191 fellows from other Regions who studied in the Americas during the same period. However, the 428 fellows who began their studies in 1965 and completed them in 1966 should be added to the previous figures, which makes a total of 1,473 fellows under the technical and administrative supervision of PASB. Compared with the 1,054 fellows in 1965, this represents a 39.8 per cent increase. Of these fellows, 815 (55 per cent) studied in countries of Latin America, and 658 (45 per cent) in the United States and Canada; 1,208 (82 per cent) were from Latin America and 265 (18 per cent) from the other WHO Regional Offices.

During the year 1,916 requests for fellowships were received (1,473 from the Americas and 443 from other Regions), representing an increase of 18 per cent over 1965 (1,621 requests). Interviews with fellows at both Washington Headquarters and the place of study once again proved to be useful and beneficial in helping to prevent or solve problems that are often faced by persons who live abroad for the first time.

Technical cooperation and advice continued to be given without interruption to the fellowships program of the Organization of American States. In 1966, 228 applications from the OAS were examined and evaluated and several of its fellows were interviewed in their place of study.

Advice and assistance to the fellowships program of the Government of Venezuela was also continued. The necessary arrangements were made for the studies and supervision of 75 fellows, 13 of whom were interviewed in the United States, 1 in Canada, and 2 in Brazil.

TABLE 31. PROFESSION OR OCCUPATION OF FELLOWS, 1966

Profession or occupation	Number
Physician.....	346
Dentist.....	20
Engineer.....	74
Veterinarian.....	23
Nurse.....	180
Other professions.....	173
Sanitary inspector.....	10
Other nonprofessional occupations.....	28
Total.....	854

III. EDUCATION AND TRAINING

TABLE 32. FELLOWS FROM OTHER REGIONS WHO BEGAN STUDIES IN THE AMERICAS, BY FIELD OF STUDY, TYPE OF AWARD, AND REGION OF ORIGIN, 1966

Field of study and type of award	Region of origin					Total
	Africa	Eastern Mediterranean	Europe	Southeast Asia	Western Pacific	
Public health administration						
Academic courses.....	5	4	2	1	5	17
Travel grants.....	1	2	—	—	3	6
Sanitation						
Academic courses.....	11	1	—	1	2	15
Travel grants.....	2	4	4	6	3	19
Nursing						
Academic courses.....	7	6	3	5	9	30
Travel grants.....	1	—	2	—	3	6
Maternal and child health						
Academic courses.....	—	—	—	—	1	1
Travel grants.....	—	—	8	—	—	8
Short courses*.....	—	2	10	1	—	13
Other health services						
Academic courses.....	1	3	—	—	2	6
Travel grants.....	—	2	—	—	7	9
Short courses*.....	2	3	—	5	3	13
Communicable diseases						
Academic courses.....	1	—	—	—	1	2
Travel grants.....	3	4	—	—	4	11
Medical education and related sciences						
Academic courses.....	—	3	1	3	1	8
Travel grants.....	1	—	9	1	2	13
Clinical Medicine						
Academic courses.....	1	—	—	1	—	2
Travel grants.....	—	1	8	—	3	12
Total.....	36	35	47	24	49	191

— None.

* Organized or sponsored by PAHO/WHO.

In addition, study programs for 27 staff members of the Organization (14 physicians and 13 nurses) were prepared.

Efforts were continued to ascertain how former fellows utilize the skills acquired through fellowship training,

since such data are basic to evaluation. To that end, 447 questionnaires were sent to the PAHO Country Representatives for distribution to former fellows who completed their studies in 1963 and 1964. The analysis of their replies will be made in 1967.

IV. PLANNING

During the first half of the decade of the Alliance for Progress most countries of Latin America established a health planning organization and embarked on the development of national health plans. The substantial amount of technical introspection involved in this process has pointed up the need for a critical re-evaluation of established practices and institutions.

It has become apparent that before additional sums of money can be attracted to health development, better output has to be derived from allocations already made for recurrent expenditures. During 1966 gains in this direction were recorded in some Member Countries as a result of the better planning and management of health services.

In one country, it was estimated that as a result of a 1 per cent increased investment in the planning process, as much as a 25 per cent increase in output of some service elements was achieved. In other countries, better utilization of hospital facilities resulted in a gain in service output equivalent to that which would have been achieved by building a new hospital.

Experience has shown that the disciplines of planning, administration, and management must go hand-in-hand to bring about better utilization of available resources.

For the purpose of training health planners, it was found necessary to adopt a well-disciplined academic approach to the subject. During the year an encouraging amount of applied planning methodology was developed at the national level, following the guidelines formulated by PAHO and by the Center for Development Studies (CENDES), in Caracas, Venezuela. The expansion of macroplanning methodology was particularly noteworthy in some of the larger countries and resulted in a better understanding at the national, state, and community levels of the relative responsibilities of each for the planning and administration of health services.

It is anticipated that with the establishment of a Pan American Center for Health Planning, the experience gained in the individual countries can be consolidated and incorporated within the planning methodology, for

the benefit of all countries of the Hemisphere. There are indications also that other Regions of the World Health Organization are interested in examining the experience obtained in the Americas with a view to incorporating it into their own approaches to national health planning.

Much of the planning activity has been concentrated in the governmental part of the health sector, which in some countries constitutes only a fraction of the national resources expended on health. The year has seen an increased amount of cooperation toward achieving a planned approach between the subsectors involved in health, which has led to a better understanding of the role of each on the national development scene.

Through the medium of national planning coordination committees, a better understanding of the objectives and methodology of planning can be developed in the various medical and health disciplines contributing to total health.

Principal Developments in 1966

PASB health planning staff were assigned to Zones I, IV, V, and VI. Consultant assistance was also given in Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Guatemala, Honduras, and Trinidad and Tobago.

National health planning courses were held in 10 countries with the assistance of PAHO consultants.

In Argentina and Brazil a program of work designed to establish an integrated approach to planning at the national and state levels was drawn up with some assistance from the Organization. Staff members also gave assistance to the Government of Chile in the implementation of the National Health Plan.

At the end of the year, the National Health Plan of Trinidad and Tobago, which was drawn up with the assistance of PAHO consultants, was presented to the Cabinet for approval.

A consultant cooperated in the work of the Tripartite Economic Mission from Canada, the United Kingdom, and the United States of America, which gave advice on de-

velopment plans for the Windward and Leeward Islands.

In Honduras, a short-term consultant assisted a mission from the Inter-American Development Bank to examine the investment requirements for hospital facilities.

In association with the IDB-ECLA-OAS Tripartite Economic Mission for Central America and the Latin American Institute for Economic and Social Planning (Santiago, Chile), a PAHO consultant helped in the preparation of the health chapter of a study on development plans in Central America.

During 1966, 36 health planners were trained at the international course conducted in cooperation with the Latin American Institute for Economic and Social Planning, making a total of 161 trained in the last five years. (For details of the fifth international course, see Chapter III of this *Report*, Education and Training.)

In the reviews of national development plans carried out in 1966 by the Inter-American Committee on the Alliance for Progress (CIAP), increased attention was given to education, health, and other social sector activities. The PAHO Office of National Health Planning assisted the Secretariat of CIAP in these country reviews. It also collaborated with the Inter-American Develop-

ment Bank in the preparation of a set of criteria for loan assistance in health projects.

Pan American Center for Health Planning

The request to the United Nations Development Program for assistance in the establishment of a Pan American Center for Health Planning, which in 1965 had received the technical support of the Director-General of WHO, was discussed at the UNDP Headquarters in New York in July 1966, especially with regard to the future relationship between the Center and the Latin American Institute for Economic and Social Planning. Consideration of the project was postponed to the June 1967 meeting of the Governing Council of the UNDP.

The Governments of Argentina, Brazil, Chile, Colombia, and Peru were requested to present a revised statement of their views on the establishment of the Center, through the local Resident Representatives of the UNDP. The other countries of Latin America were also requested to give their opinions. By the end of 1966, seven countries had expressed their agreement to the establishment of a Center comprising a coordination and training unit in Santiago, Chile, and research establishments in various countries.

V. RESEARCH

The PAHO Advisory Committee on Medical Research, at its Fifth Meeting held from 13 to 17 June 1966, reviewed the status and accomplishments of the Organization's research program during the five years of the Committee's existence. Document RES5/8, presented to the Committee, summarized 90 research projects whose initiation, operation, or completion fell within that period and which encompassed such broad fields as nutrition, communicable diseases, environmental health, reference

and training center activities, health manpower, and medical education, funded by both PAHO and by outside sources.

A significant step for the future of the program was taken at the XVII Pan American Sanitary Conference, which, in Resolution XVI, authorized the Director of PASB to establish a Special Fund for Research in order to provide for direct support of research and research training in closer adherence to the Organization's priori-



Fifth Meeting of the PAHO Advisory Committee on Medical Research, held at PAHO Headquarters, in Washington, D.C., 13-17 June 1966.

ties. Contributions from three Governments were offered during the Conference for the further development of the research program.

Migration

During the Advisory Committee meeting special attention was given to the study on the migration of health personnel, scientists, and engineers from Latin America. A report prepared by the PAHO Subcommittee on Migration (Scientific Publication PAHO 142), at the Committee's request, reviewed the importance of those professional groups to the national economy and to the intellectual, cultural, and political future of nations.

A study of the factors that affect the number and determine the level of scientists deemed desirable for optimal national development is of critical importance for a number of countries in Latin America where the situation in recent years has been upset by the migration toward countries (usually the U.S.A.) in which career prospects are brighter in both economic and intellectual terms. The Subcommittee summarized all the facts available on the subject, identified the characteristics and size of the migrating professional groups, analyzed the forces leading to migration, and recommended measures that would reconcile the legitimate aspirations of highly trained individuals with the needs of the countries for trained manpower.

The Advisory Committee agreed that it was not desirable to reduce migration by increasing existing restrictions, and emphasized that the most rewarding approach is the improvement of working conditions for biomedical scientists in Latin America. Among the steps that it recommended be considered by PAHO, four can be singled out:

(a) The strengthening of existing centers for research and advanced training in Latin America.

(b) Promoting recognition of the fact that, in addition to the specific research objectives of granting agencies, the support of science in Latin America by agencies based outside that area serves to sustain the vitality of many outstanding institutions and that such support should be viewed in this wider context.

(c) Establishment of an information center for studying the movement of health personnel to and from Latin America with a view to preventing the excessive loss of scientists from that area through migration.

(d) Surveying Latin American medical schools to assess the status of research and teaching activities in the preclinical sciences, along the lines of the study carried out in 1957 by PAHO with the cooperation of the

Latin American Association of Physiological Sciences, so as to bring out changes that may have occurred during the past decade.

Multinational Centers for Advanced Training and Research in the Life Sciences and Medicine

In authorizing the establishment of a Special Fund for Research, the XVII Pan American Sanitary Conference also requested that the Organization "study means for expanding and augmenting the number of multinational centers for training and research in the life sciences and medicine in the Americas, and present appropriate proposals to the XVII Meeting of the Directing Council." To comply with this request a preliminary report was prepared summarizing the basic approach of PAHO to multinational collaboration and emphasizing the need for complementation and better utilization of existing institutions—through planned programs for the exchange of professors and students, use of expensive equipment, visits by outstanding scientists, etc.—rather than the establishment of new ones. Specific proposals for the development of multinational efforts in different fields—initially in microbiology, pathology, physiological sciences, biostatistics and demography, and regional medical libraries—will be compiled in a comprehensive report to be submitted to the Directing Council.

Scientific Communications

The PAHO program to improve scientific communications continued along the two lines singled out by the Advisory Committee: the development of a regional medical library center in South America and the publication of quarterly journals of region-wide interest in a number of biomedical specialties.

Discussions continued with agencies interested in the establishment of a regional library that would serve the information needs of biomedical science in South America and at the same time assist in accelerating the development of medical school and institute libraries. Plans call for its location in São Paulo, Brazil, in space provided by the Paulista School of Medicine. The National Library of Medicine in Bethesda, Maryland, U.S.A., would provide technical support, training of key personnel, and access to its book credits from the U.S. Book Exchange. PAHO would provide administrative and organizational support.

Progress in advancing the concept of regional periodical publications along the lines established by the journal *Acta Physiologica Latino-Americana* was evidenced by the appearance, in December 1966, of the *Archivos Latinoamericanos de Nutrición*, a quarterly journal whose principal objective is the publication of the results of basic and applied nutrition research in Latin America. This journal—a continuation of the *Revista Venezolana de Nutrición*—is the official organ of the newly formed Latin American Nutrition Society, which has its editorial offices in Caracas, Venezuela.

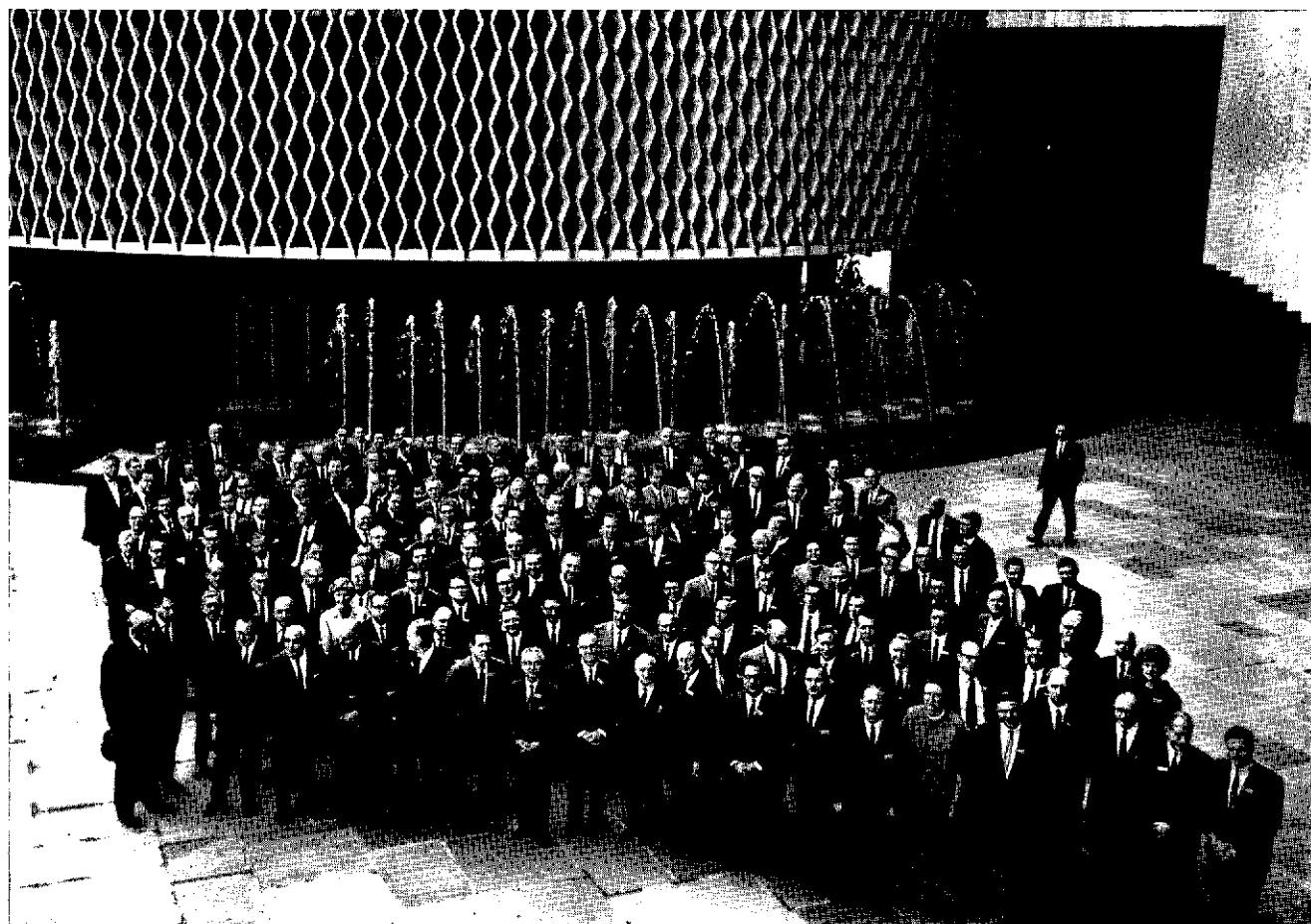
Research Planning

The Advisory Committee reviewed the progress made in planning for a public health research program in Argentina and discussed it in relation to the general question of the organization of science in the community. The program is based on the principle that it

is the responsibility of ministries of health to decide general policy and provide funds, but that the administration and execution of the research program should be in the hands of a scientific body—in this case the National Research Council of Argentina. This exemplifies the joining of basic and applied science, with benefits accruing to both. At the request of the Government of Argentina, PAHO is making available consultants to advise the Ministry of Public Health in the development of the appropriate mechanisms for the eventual achievement of such objectives.

Other Scientific Meetings

During the Fifth Meeting of the Advisory Committee, a one-day session on "Life at High Altitudes" was held to explore man's natural and acquired acclimatization to anoxic environments. The topic is of special significance in this Hemisphere, where several million people



Participants in the First PAHO/WHO International Conference on Vaccines against Viral and Rickettsial Diseases of Man, held at PAHO Headquarters, in Washington, D.C., 7-11 November 1966.

reside at altitudes of over 10,000 feet, with consequent modification both in the functional and organic characteristics of man and in the pattern of the incidence and evolution of disease. The discussions focused on morphological, physiological, clinical, and demographic characteristics of man's natural and acquired adaptations to high altitude. The proceedings, issued as Scientific Publication PAHO 140, contain the scientific papers presented, the discussions held, and a summary of the needs for further research.

The Second Meeting of the PAHO Research Group on the Chemotherapy of Chagas' Disease took place in Belo Horizonte, Brazil, in July-August 1966. The meeting continued the useful role of coordinating the clinical investigations conducted by the members of the Group and of screening and evaluating chemotherapeutic compounds selected for their potential efficacy in the treatment of this disease.

The First PAHO/WHO International Conference on Vaccines against Viral and Rickettsial Diseases of Man was held in Washington, D.C., from 7 to 11 November 1966, with 280 scientists from 27 countries attending. The objectives of the Conference—the largest scientific meeting held by the Organization in recent years—were to review current knowledge in this field and to delineate directions and needs principally in vaccine research but also in chemotherapeutic and other approaches. The formal papers presented and discussions held will be published early in 1967 in the proceedings of the Conference (Scientific Publication PAHO 147), in which the chapters will cover the sessions of the meeting devoted to control of acute respiratory diseases; enteroviruses; arboviruses and herpesvirus; exanthems and mumps; smallpox, rabies, and hepatitis; rickettsiae, bedsoniae, and adjuvants; vaccination problems and other approaches to the control of viral diseases.

Population Dynamics

The organization continued its role of providing clearinghouse services on health aspects of population dynamics through the annual conferences convened for the purpose of exchanging information among private and public agencies at national and international levels. The Second Conference on Population Dynamics met in a one-day session on 3 January 1966 in Washington, D.C., and was attended by representatives of 38 foundations, universities, and national and international government organizations.

At the meeting emphasis was placed on the desirability of developing university resources for training, research,

and service in population dynamics; on the need for interdisciplinary studies and surveys of population utilizing the skills of cultural anthropology and social psychology; and on the advisability of making greater use of sampling techniques to provide valid data to facilitate decision-making in the Governments' health programs, while continuing long-term efforts to improve national reporting and registration of vital statistics.

The Conference took note of the redesigning of the biostatistics curriculum in the PAHO-supported program in the School of Public Health of the University of Chile to include courses on population dynamics and health, and underlined the progress made in establishing at the University of São Paulo, Brazil, a center for teaching and studying population, health, and development.

Plans were discussed to enlarge the scope of these meetings so that at the Third Conference, in addition to documents providing data on population studies and programs, full scientific reports would be presented on given aspects of population in the various countries of the Americas.

A Population Information Center was established early in 1966 as a functional responsibility of the Office of Health and Population Dynamics of PASB. Following recommendations made by the First and the Second PAHO Conferences on Population Dynamics, the Center is responsible for the assembly, publication, and dissemination of all relevant information on population policies and programs of cooperating organizations and of information from other sources throughout the Hemisphere.

Two epidemiological investigations in population dynamics, with emphasis on the study of abortion, were begun with the participation of PAHO/WHO during 1966: one in Peru in two localities, each with approximately 10,000 inhabitants, and one in the city of São Paulo, Brazil. Both are prospective studies. In the selected localities in Peru all women of child-bearing age will be interviewed at monthly or bimonthly intervals to obtain a register of all household members and current information on pregnancy, fetal losses, live births, health status of infants, and deaths in the family. Observation will continue for three years.

The study in São Paulo will be conducted on a sample basis, with observation of 1,500 or 3,000 women previously interviewed, for a retrospective study on human reproduction. Each woman of child-bearing age will be followed at three-month intervals during one year through household visits by professional social workers or health educators. The objectives are to provide data on the significance of provoked abortions and their relation

to maternal deaths in order to detect the possible factors leading to abortion, and to provide a complete record of pregnancies in the period, the condition of the child at birth, and perinatal mortality as related to prenatal care, number of pregnancies, duration of pregnancy, and socioeconomic factors.

Nutrition

Eight laboratories and research units in seven countries (Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Venezuela) are now participating in the PAHO Collaborative Study on Endemic Goiter and Cretinism. Epidemiological and socioeconomic data were collected, and the use of intramuscular injections of iodized oil as a means to prevent goiter was investigated in Ecuador and in Peru. Four short-term consultants participated in the study, in addition to PAHO's field personnel. Installation of the PAHO Iodine Reference Laboratory in Santiago, Chile, was completed, and the first trainee started training late in the year. The Laboratory will standardize methods in endemic goiter studies through the checking of duplicate samples from collaborating laboratories, and will help improve the techniques through the training of personnel.

The joint PAHO/WHO Collaborative Study on Nutritional Anemias continued actively with the collaboration of nine laboratories in seven countries (Argentina, Brazil, Colombia, Paraguay, Peru, Trinidad and Tobago, and Venezuela). The Reference Laboratory for this study is located at the Venezuelan Institute of Scientific Research, in Miranda State, Venezuela. A short-term consultant visited nine countries in order to review the facilities of the collaborating laboratories (or potential collaborators) and to provide advice. The preliminary results of this review will be presented at the WHO meeting on nutritional anemias which will be held in 1967.

Plans were developed to initiate a study on the importance of vitamin A deficiency in Latin America and to examine PAHO's possible role in its prevention and treatment.

In 1966 the Organization again sent to Chile a short-term consultant to cooperate in the up-dating of the protocol for the research project on the biodynamics of vitamin D in osteomalacia, which was submitted for approval to the U.S. National Institutes of Health.

A major portion of the Organization's research in nutrition is conducted at the Institute of Nutrition of Central America and Panama (*see under* Nutrition, Chapter II.B).

Malaria

It has long been known that some strains of *Plasmodium falciparum* in Brazil are resistant to chloroquine, and the Organization has been providing technical expertise in field studies to investigate alternative treatment regimens. Trials are being carried out in Espirito Santo, where chloroquine resistance has been demonstrated. Two dosage levels of chloroquine-primaquine and one of pyrimethamine with sulforthomidine are being tested. The results obtained to date show from 44 to 67 per cent failure (relapse) rates in the chloroquine-primaquine series, but only 2 per cent in the pyrimethamine-sulforthomidine series.

In Colombia guidance has been given also for the conduct of an experiment with a new three-drug treatment for the radical cure of *P. vivax* infections. Pairs of cases matched for place of residence, age-group, and sex are being treated, one with the classical 14-day radical-cure treatment with chloroquine and primaquine, and the other with the experimental treatment of three days of chloroquine, primaquine, and pyrimethamine. A *P. vivax*-free control is also matched to each pair of cases. This study will continue for another year.

In Mexico personnel of the Organization continued to play an essential role in the pilot projects that are under way to test and select the most appropriate attack methods for later use in an expanded program. The Pilot Plan of Integrated Attack (PPAI), employing intensive search for cases and prompt radical-cure treatment as an adjunct to DDT spraying, has reduced prevalence gradually. The Plan of Individual Responsibility for Limited Areas (PRIAL), which employs polyvalent agents who both maintain DDT coverage of all appropriate surfaces and also search for cases, on a monthly itinerary, began in January 1966 and is progressing very satisfactorily.

The Organization has joined with the Government of Panama and the Gorgas Memorial Laboratory in a trial of collective treatment on a biweekly basis with primaquine-pyrimethamine, which is being carried out along the Sambú River in Darién Province. Malaria prevalence in the area covered has been much reduced, although population movements continuously introduce new cases. There is some evidence of insufficient dosage.

Research into new insecticides for use as residual house-sprays continued in El Salvador (project AMRO-0209, Insecticide Testing Team). The product OMS-33, a carbamate insecticide commercially known as Baygon, was continued under observation in experimental huts and in a village-scale trial for half the year. It was started in stage VI, Large-Scale Operation Field Trials,

in April 1966 in an isolated but highly malarious area with 3,000 houses and a population of 13,000 people. The first spray application was allowed to act for four months, which proved to be too long. From August onward, cycles were repeated at three-month intervals. The fourth cycle was scheduled for application in February-March 1967.

Intensive studies of the entomological action of this insecticide have resulted in new methods for measuring over-all house effectiveness (live-dead ratios in morning captures, wall traps for walls made of poles or sticks) and have shown a very surprising airborne killing effect that extends for considerable distances outside recently sprayed houses.

The effect of this insecticide on spraymen and/or residents of houses as well as domestic animals has been intensively studied. It is a very safe insecticide from the standpoint of death or chronic toxic effects, because with reasonable precautions no toxic effects occur at all. The insecticide is rapidly excreted and is devoid of cumulative effects. Early warning signs of nausea, vomiting, etc., occur in occasional cases of mild over-exposure, but these are very transitory and disappear promptly when exposure is terminated. They constitute an unfailling, timely, and harmless notice to reduce contact with the insecticide. Although this insecticide is highly promising in many ways, its present cost is prohibitive.

Experimental-hut trials have been started on two more carbamate insecticides, OMS-716 and OMS-708. In addition, excito-repellency tests are being run on five additional new candidate insecticides.

Information is being accumulated on locality and seasonal variations in density of *Anopheles albimanus* which sheds light on problems of success or failure of spraying operations.

Inter-American Investigation of Mortality

The analysis of findings and preparation of a final report on the Inter-American Investigation of Mortality, in which 43,298 adult deaths from 12 different cities were studied, was continued during 1966. Participating with the Organization's staff in developing this presentation are the medical referees who reviewed the clinical, laboratory, and autopsy reports on the deaths and the principal collaborators who were responsible for conducting the Investigation in each of the cities. A partial study on this Investigation, entitled "International Research on Mortality,"* was presented at the American

* Published in Spanish in the *Boletín de la Oficina Sanitaria Panamericana*, Vol. LXI, No. 6 (December 1966).

Statistical Association in Los Angeles, California, in August 1966.

As a by-product of the Investigation, an epidemiological study of cancer of selected body sites was begun by the Organization and the Ministry of Health in Buenos Aires, Argentina, with a grant from the Anna Fuller Fund. This is a case-control study to investigate certain epidemiological characteristics of patients with cancer of the larynx, lung, and urinary bladder, with particular reference to residence history, occupation, smoking habits, and the use of alcohol. A part-time collaborator in that city was appointed and the cooperation of several of the main hospitals in the city was obtained. A trial run of the questionnaire for this study was initiated late in 1966.

Child Mortality

Plans were made by PAHO for an inter-American collaborative investigation of mortality in childhood in several urban and rural areas in the Americas, for the purpose of developing accurate and comparable death rates and studying the nutritional, sociological, and environmental factors associated with excessive mortality. During the pilot phase in 1967 the study will be initiated in urban and rural areas of four countries (Brazil, Colombia, Guatemala, and Jamaica), where procedures will be developed and questionnaires tested. Faculty of four medical schools are collaborating in the study in Brazil, Colombia, and Jamaica. In Guatemala investigators from INCAP have taken the responsibility for the project. Following the pilot phase and the review of procedures, it is expected that the study will be extended to include areas in additional countries. A planning meeting of the collaborators in the pilot program was held from 17 to 20 October 1966 in Washington, D.C. The U.S. Agency for International Development has furnished the financial support for the pilot stage of this investigation.

Radiation and Isotopes

The biological and physical studies begun in previous years on the effects of high background radiation in areas of Brazil was continued, with the financial support of the U.S. Atomic Energy Commission, by the Biophysics Institute of the University of Brazil and the Department of Physics of the Catholic University, both in Rio de Janeiro. The program has been coordinated by a PAHO-sponsored consultant, from the Industrial Hygiene Division of the New York University Medical School, who

goes to Brazil twice a year. In 1966 further investigations confirmed the previous year's findings that cytogenetic studies of blood cells of residents in the high background radiation areas have demonstrated an increased number of chromosomal aberrations. Detailed work has been planned in order to delineate the extent and types of these aberrations.

With the cooperation of the PAHO radiation physicist stationed in Lima, Peru, preparations were completed for establishing a research program in radiation dosimetry in two or three Latin American countries in 1967. Its purpose is to compare the relative effectiveness of film badge dosimetry with pocket dosimeters under conditions of continuous high humidity and heat, such as exist in tropical areas. The U.S. Office of Civil Defense confirmed its offer to provide the dosimeters and chargers for these studies. A specific request for the program was received from Jamaica. In addition, Guyana appears to be desirous of carrying out a similar project.

For the research project on the biology and ecology of *Rhodnius prolixus*, a third-year grant was approved by the U.S. National Institutes of Health. The project is being conducted in Venezuela, using radioisotope tracer techniques to study the biology and ecology, as well as the effects of radiation on the fertility of this vector of Chagas' disease.

The Organization continued to coordinate the research study on manganese poisoning as a metabolic disorder. Neutron activation analysis is being employed to determine levels of manganese in various human tissues and body fluids in order to relate these levels to various

stages of toxicity and, possibly, to elucidate the mechanisms by which chronic industrial inhalation of manganese ores induces a schizophrenia-like syndrome followed either by Parkinsonism or a "Wilson's disease-like syndrome." In September the U.S. Public Health Service approved a fourth year's grant for this study, which is being carried on in Chile by researchers of the Medical School of the Catholic University (Santiago), where the clinical investigations are being made, and in the United States of America at the Medical Research Department of the Brookhaven National Laboratories (Upton, Long Island, New York), where the neutron activation analysis is conducted.

Additional studies were carried out in Chile to help explain the uptake mechanisms involved in manganese metabolism, and parallel investigations of the homeostatic mechanisms that control this metal were performed in experimental animals both in Chile and at Brookhaven. As a result of the successful work accomplished, the project was submitted to the USPHS for an additional three years' support.

Other Activities

The research activities of the Pan American Zoonoses Center and of the Pan American Foot-and-Mouth Disease Center are described in Chapter I.A (*under Zoonoses*). Those relating to environmental sanitation appear in Chapter I.B.

VI. PUBLICATIONS AND INFORMATION

PUBLICATIONS

During 1966 the Organization's program of publications was further expanded. The monthly *Boletín de la Oficina Sanitaria Panamericana* was issued regularly and a new quarterly journal on medical education, *Educación médica y salud*, appeared during the year. In the Special Publications series (Scientific, Miscellaneous, Official Documents, and others), a total of 61 publications were issued, with 8,869 pages and 130,200 copies printed (Tables 33 and 34).

Special Publications

The volume *Administration of Medical Care Services—New Elements for the Formulation of a Continental Policy* (Scientific Publication 129), which appeared in separate editions in English and in Spanish, contained a compilation of the working documents of the PAHO Study Group on the Coordination of Medical Care in Latin America and those of the PAHO Advisory Committee on Planning of Hospitals and Other Health Services. It was used in connection with a survey that served as a basis for the Technical Discussions held during the XVII Pan American Sanitary Conference.

The working papers and final report of the Regional Conference on Water Supply in the Americas (Washing-

ton, D.C., October 1965) were compiled in Scientific Publication 132, *Conferencia Regional sobre Abastecimiento de Agua*. Another important volume in the water supply field was Scientific Publication 145, *Bombas para agua potable—Apuntes del curso intensivo*, which contained a series of technical papers on the selection, design, and operation and maintenance of water pumps, for use in the training of engineers.

With the authorization of the United States Public Health Service, the Organization published the Spanish translation of the *Clinical Handbook on Economic Poisons—Emergency Information for Treating Poisoning* (Scientific Publication 143), using as a basis the Spanish text made available by the Department of Industrial Health of the Ministry of Health and Welfare of Mexico. The manual is based on laboratory, field, and clinical studies to determine the toxic hazards to man that are involved in the use of insecticides and other substances in public health and agriculture.

In the field of communicable diseases, attention was given to the recurring problem of venereal diseases. Scientific Publication 137 contained the report and working documents, in Spanish, of the Seminar on Venereal Diseases (Washington, D.C., October 1965) and additional material on very recent techniques for laboratory diagnosis. The Spanish edition of the U.S. Public Health Service manual on *Serologic Tests for Syphilis (1964)* was published under the title *Manual de reacciones serológicas para el diagnóstico de la sífilis* (Scientific Publication 144). It replaced the 1955 and 1959 editions of this manual, published as PAHO Scientific Publications 30 and 47, respectively.

To meet the continuing demand, a 10,000-copy second printing was issued of Scientific Publication 120, *El control de las enfermedades transmisibles en el hombre* (10th ed., APHA, 1965), making a total of 30,000 copies printed to date.

A major publication issued in 1966 was the 627-page volume *Nutrición humana* (Scientific Publication 146), which was translated from the original English text

TABLE 33. SUMMARY BREAKDOWN OF PUBLICATIONS, 1966

Series	Number	Pages	Pressrun
Scientific Publications.....	30	3,959	68,500
Second printings.....	5	464	13,500
Official Documents.....	16	3,372	17,200
Miscellaneous Publications.....	4	225	10,000
Second printings.....	4	186	15,000
Others.....	2	663	6,000
Total.....	61	8,869	130,200

TABLE 34. PAHO PUBLICATIONS, 1966

Serial number	Title	Pages	Pressrun
<i>Scientific Publications</i>			
119	Science Policy in Latin America—Substance, Structures, Processes.....	77	2,000
120	Control de las enfermedades transmisibles en el hombre (10th edition) (<i>2nd printing</i>).....	328	10,000
126	Classificação Internacional de Doenças—Adaptação para Índice de Diagnósticos de Hospitais e Classificação de Operações.....	311	5,000
127	Métodos para mejorar las estadísticas vitales y de salud (Discusiones Técnicas, XVI Reunión del Consejo Directivo).....	83	1,000
	<i>2nd printing</i>	83	1,000
128	Methods for Improving Vital and Health Statistics (Final Report, Technical Discussions, XVI Meeting of the Directing Council).....	15	500
	<i>2nd printing</i>	15	500
129	Administration of Medical Care Services—New Elements for the Formulation of a Continental Policy.....	138	1,000
129	Administración de servicios de atención médica—Nuevos elementos para la formulación de una política continental.....	149	2,000
130	A Program of Health Care for Mothers and Children.....	109	500
130	Un programa de cuidados de la salud para la madre y el niño.....	99	3,000
131	Man and His Environment—Medical Knowledge and Social Action.....	18	2,500
	<i>2nd printing</i>	18	1,000
131	El hombre y su ambiente—El conocimiento médico y la acción social.....	20	2,500
	<i>2nd printing</i>	20	1,000
131	O homem e seu ambiente—Conhecimentos biomédicos e ação social.....	19	2,000
131	L'homme et son milieu—Connaissances biomédicales et action sociale.....	20	1,500
132	Conferencia Regional sobre Abastecimiento de Agua en las Américas.....	125	3,000
133	La salud del niño en los trópicos—Manual práctico para el personal médico y paramédico.....	175	5,000
134	Deprivation in Psychobiological Development.....	98	2,000
135	Reported Cases of Notifiable Diseases in the Americas, 1964.....	63	1,000
135	Casos notificados de enfermedades de declaración obligatoria en las Américas, 1964.....	62	2,000
136	Publicaciones Científicas del Instituto de Nutrición de Centro América y Panamá—Recopilación No. 5.....	330	3,000
137	Seminario sobre Enfermedades Venéreas.....	169	2,000
138	Health Conditions in the Americas, 1961–1964.....	151	1,000
138	Las condiciones de salud en las Américas, 1961–1964.....	156	3,000
139	Regional Advisory Committee on Health Statistics. Fourth Report.....	22	1,000
139	Comité Regional Asesor sobre Estadísticas de Salud. Cuarto Informe.....	31	3,000
140	Life at High Altitudes.....	98	2,000
141	Cuarta Conferencia de Directores de Escuelas de Salud Pública de América Latina.....	144	2,000
142	Migration of Health Personnel, Scientists, and Engineers from Latin America.....	127	2,000
143	Manual clínico sobre sustancias tóxicas—Tratamiento de emergencia en caso de intoxicación con venenos empleados contra las plagas.....	135	5,000
144	Manual de reacciones serológicas para el diagnóstico de la sífilis, 1964.....	112	3,000
145	Bombas para agua potable—Apuntes del curso intensivo.....	276	2,000
146	Nutrición humana.....	627	3,000
<i>Official Documents</i>			
65	Basic Documents of PAHO, sixth edition.....	118	200
65	Documentos Básicos de la OPS, sixth edition.....	126	300
66	Final Report, XVI Meeting of the PAHO Directing Council, XVII Meeting of the WHO Regional Committee for the Americas (Bilingual edition).....	107	1,500
67	Proposed Program and Budget Estimates: PAHO, 1967; WHO, Region for the Americas, 1968, and PAHO, Provisional Draft, 1968.....	274	400
67	Proyectos de Programa y Presupuesto: OPS, 1967; OMS, Región de las Américas, 1968, y OPS, Anteproyecto, 1968.....	274	400
68	Financial Report of the Director and Report of the External Auditor, 1965.....	80	400
68	Informe Financiero del Director e Informe del Auditor Externo, 1965.....	80	400
69	Proceedings, XVI Meeting of the PAHO Directing Council, XVII Meeting of the WHO Regional Committee for the Americas.....	457	1,000
69	Actas, XVI Reunión del Consejo Directivo de la OPS, XVII Reunión del Comité Regional de la OMS para las Américas.....	467	1,000
70	Annual Report of the Director, 1965.....	308	2,000
70	Informe Anual del Director, 1965.....	326	2,000
71	Final Report, 54th Meeting of the Executive Committee (Bilingual edition).....	46	1,600

TABLE 34. PAHO PUBLICATIONS, 1966—(Cont.)

Serial number	Title	Pages	Pressrun
72	Quadrennial Report of the Director, 1962-1965	169	2,000
72	Informe Cuadrienal del Director, 1962-1965	178	2,000
73	Précis Minutes, 54th Meeting of the Executive Committee	180	1,000
73	Actas resumidas, 54a Reunión del Comité Ejecutivo	182	1,000
<i>Miscellaneous Publications</i>			
77	PAHO: What It Is, What It Does, How It Works (2nd printing)	28	5,000
77	La OPS: Su finalidad, sus actividades, su estructura (2nd printing)	28	5,000
80	Health and Progress in the Americas	45	5,000
80	Salud y progreso en las Américas	50	2,000
81	Facts on Progress—Health Goals in the Charter of Punta del Este	62	1,000
	2nd printing	62	2,000
81	Hechos que revelan progreso—Metas de salud en la Carta de Punta del Este	68	2,000
	2nd printing	68	3,000
<i>Other Publications</i>			
—	Classificação Internacional de Doenças, Revisão 1955, Volume 2, Índice Alfabético	557	5,000
Nursing Reports No. 5	Survey of Schools of Nursing in the Caribbean Area	106	1,000

authored by Benjamin T. Burton. This comprehensive textbook (627 pages) covers, in five main chapters, the basic physiology and biochemistry of the human body as it relates to food intake and utilization; nutrients, their sources, metabolism, physiology, and interrelationships; human nutritional requirements and nutrition under varying conditions of health and in periods of physiologic stress; nutrition in disease: the relationship between nutrition and specific diseases and the practical therapeutic and preventive aspects of special diets; and additional aspects of nutrition. The INCAP Food Composition Table for Use in Latin America is reproduced in its entirety in the appendix.

The fifth compilation of scientific papers prepared by INCAP, entitled *Publicaciones Científicas del Instituto de Nutrición de Centro América y Panamá*, was published as Scientific Publication 136.

The Spanish edition of *Child Health in the Tropics*, by Dr. D. B. Jelliffe, was issued in a 5,000-copy edition (Scientific Publication 133). It is a practical handbook for medical and paramedical personnel and covers the main aspects of child health—clinical, preventive, and social—in all parts of the tropics. The Spanish text was adapted so as to reflect more closely the existing conditions in Latin America.

The volume *A Health Care Program for Mothers and Children*, issued in English and in Spanish (Scientific Publication 130), set forth guidelines for the development of national programs in this field as a part of the general health services programs.

The sixth in the series of *Reports on Nursing* was issued during the year. It contained the report of the *Survey of Schools of Nursing in the Caribbean Area* (English edition).

The report on the Fourth Conference of Deans of Schools of Public Health in Latin America, was issued in Spanish as Scientific Publication 141. It contained the working papers of the meeting (San Juan, Puerto Rico, 1965), the main theme of which was the teaching of epidemiology, and also the reports of 10 schools of public health describing the progress made by them since the Third Conference, held in 1963.

Four publications in the field of research were issued during the year: the English edition of Scientific Publication 119, *Science Policy in Latin America—Substance, Structures, and Processes*, prepared by a Study Group for the PAHO Advisory Committee on Medical Research; *Deprivation in Psychobiological Development* (Scientific Publication 134), containing the proceedings of the Special Session held during the Fourth Meeting of the Advisory Committee; *Life at High Altitudes* (Scientific Publication 140), covering the Special Session held during the Fifth Meeting of the Committee; and *Migration of Health Personnel, Scientists, and Engineers from Latin America* (Scientific Publication 142), a report prepared for the Advisory Committee by the PAHO Subcommittee on Migration.

A total of 12 publications were issued in the field of health statistics. They included the Portuguese volumes

Classificação Internacional de Doenças—Adaptação para Índice de Diagnósticos de Hospitais e Classificação de Operações (Scientific Publication 126), and *Classificação Internacional de Doenças, Volume 2, Índice Alfabético (Revisão 1955)*; and English and Spanish editions of the following: *Facts on Progress—Health Goals in the Charter of Punta del Este* (Miscellaneous Publication 81); *Reported Cases of Notifiable Diseases in the Americas, 1964* (Scientific Publication 135); *Health Conditions in the Americas, 1961–1964* (Scientific Publication 138); report and working papers of the Technical Discussions held during the XVI Meeting of the Directing Council (Scientific Publications 127 and 128); and Fourth Report of the PAHO Regional Advisory Committee on Health Statistics (Scientific Publication 139).

Sixteen publications were issued in the Official Documents Series: English and Spanish editions of the *Basic Documents of PAHO, Sixth Edition* (Official Document 65); *Proposed Program and Budget, 1967–1968* (Official Document 67); *Financial Report of the Director and Report of the External Auditor, 1965* (Official Document 68); *Proceedings of the XVI Meeting of the PAHO Directing Council* (Official Document 69); *Annual Report of the Director, 1965* (Official Document 70); *Quadrennial Report of the Director, 1962–1965* (Official Document 72); and *Précis Minutes of the 54th Meeting of the Executive Committee* (Official Document 73). The *Final Reports of the XVI Meeting of the Directing Council* (Official Document 66) and of the *54th Meeting of the Executive Committee* (Official Document 71) were published in bilingual editions.

Periodical Publications

The *Boletín de la Oficina Sanitaria Panamericana* completed its 45th year of publication in 1966. Authors from all parts of the Americas continued to contribute to its pages, which constituted a record of the progress of public health in the Hemisphere.

Twelve regular issues were published, with a total of 1,132 pages, which included 75 original articles, or approximately 70 per cent of the total. The average monthly pressrun was about 11,100 copies. Water supply and other environmental sanitation activities were among the main subjects featured. A complete series of articles on venereal diseases also appeared. Other subjects on which major articles were published included malaria, professional education and training, training of auxiliary personnel, health planning, health statistics, nutrition, maternal and child health, nursing, dental health, mental health, diarrheas and intestinal infections, endemic goiter,

veterinary public health, zoonoses, and a series of articles on communicable diseases, including tuberculosis, typhoid fever, measles, poliomyelitis, respiratory viruses, leprosy, yellow fever, tetanus, and others. The program to publish simultaneously original articles in English in the *Bulletin* of WHO and in Spanish in the *PASB Boletín* was continued.

The editorials included those on the World Health Day theme "Man and His Cities" and others on the venereal disease control program, and on the activities of PAHO in the quadrennium 1962–1965.

The "Reseñas" section included 35 abstracts of articles published in other journals and original reports on many subjects, including environmental sanitation, smallpox, malaria, plague, leprosy, rabies, measles, venereal diseases, cardiomyopathies, zoonoses, child mortality, mental health, alcoholism, nursing, maternal and child health, nutrition, professional education, radiation hazards, automatic data processing in health administration, motor vehicle accidents, and others.

In the "Actualidades" section, summary reports were published regularly on meetings of the Governing Bodies, technical meetings sponsored by PAHO/WHO, courses and seminars, along with news items on public health activities of the countries. The monthly Calendar of Meetings and periodic reports on the status of *Aedes aegypti* eradication in the Americas formed a regular part of this section. In April, the entire section was devoted to World Health Day.

In the "Libros" section, a total of 77 books were reviewed during the year. This section has been strengthened to feature more information on new publications issued by PAHO and by WHO.

The new quarterly journal *Educación médica y salud* was launched during the year as a joint project of PAHO and the Pan American Federation of Associations of Medical Schools. The first issue (October-December 1966) appeared in October in a 66-page edition, with 3,300 copies printed. It featured an editorial by the Director of PASB describing the journal's role in promoting the interchange of information on medical and paramedical education, and six original articles by professors of medical schools of Chile, Colombia, the United States of America, and Venezuela, and by a nurse-educator. The journal also contains an information and news section, and reviews of books and abstracts of articles published in other journals.

The PAHO *Weekly Epidemiological Report* was issued regularly during the year in a bilingual English-Spanish edition.

VI. PUBLICATIONS AND INFORMATION

TABLE 35. PUBLICATIONS DISTRIBUTED IN 1966

Type of publication	Number of copies distributed	Total
<i>PAHO publications</i>		
Scientific Publications.....	82,299	
Official Documents.....	11,944	
Miscellaneous Publications.....	19,985	
<i>Boletín de la Oficina Sanitaria</i>		
<i>Panamericana</i>	129,469	
Reprints of original articles.....	10,105	
Other PAHO publications.....	20,215	
Total PAHO publications.....		274,017
<i>WHO publications</i>		
Technical Report Series, Monograph Series, Public Health Papers, and Official Records.....	5,904	
Other WHO publications.....	19,159	
Total WHO publications.....		25,063
Grand Total.....		299,080

During 1966 a total of almost 300,000 copies of publications were distributed by the Organization (Table 35).

INFORMATION

Mass-Media Coverage

Special Events. In 1966 the Organization was the source of many major news stories. Foremost among them were the XVII Pan American Sanitary Conference; the First PAHO/WHO International Conference on Vaccines against Viral and Rickettsial Diseases in Man; President Lyndon B. Johnson's address on the occasion of the fifth anniversary of the Charter of Punta del Este, delivered on 17 August in the main council chamber at PAHO Headquarters; the award to the Director of PASB of a 1966 Bronfman prize for achievement in public health; and the yearly celebration of World Health Day on 7 April.

For the Pan American Sanitary Conference 20 news releases were put out, covering the main topics of the meeting. The story of the "brain drain," based on PAHO Scientific Publication 142, *Migration of Health Personnel, Scientists, and Engineers from Latin America*, was best publicized by the press in both the United States and Latin America.

To facilitate coverage of the International Conference

on Vaccines, during which 280 distinguished scientists from 27 nations met at PAHO Headquarters from 7 to 11 November, a press section was set up, daily press briefings were held, and copies of technical papers and of the verbatim transcripts were made available to newsmen. The proceedings were given wide coverage by leading U.S. dailies, medical magazines, the Voice of America (which broadcast 50 tapes of press briefings, participant interviews, and round-table talks to worldwide audiences), and by radio and television in Washington.

The Information Office worked with publicity officials of the American Public Health Association on the occasion of the award of a 1966 Bronfman prize to the Director of PASB.

For World Health Day, the District of Columbia Health Department joined with the Organization in staging a public program to focus attention in the Washington area on the theme "Man and His Cities." The Health Department set up in the PAHO Building demonstration testing units for air and water pollution and for radiation safety. The Information Office prepared a photo art display to illustrate improved architecture for cities, using in the display photos of the PAHO Headquarters itself. Car cards and posters were used extensively in buses, schools, libraries, and supermarkets in the area. Nation- and hemisphere-wide focus came through messages issued by the President of the United States of America, the Director-General of WHO, high health officials in Latin America, and the Director of PASB. World Health Day information was sent out in 12,500 kits in English, 5,650 in Spanish, and 3,000 in Portuguese.



Press conference during the First PAHO/WHO International Conference on Vaccines against Viral and Rickettsial Diseases of Man, held in Washington, D.C., in November 1966.

Another meeting that received good coverage was the "Seminar on the Prevention of Re-establishment of Malaria in Areas Where the Disease Has Been Eradicated," held at Headquarters in November. Coverage included radio interviews with 10 participants which went out over the Voice of America and Organization of American States broadcasts, as well as over the Spanish-language FM station in the Washington area.

The Information Office also set up public ceremonies for the presentation by nine Governments of gifts of works of art to the PAHO Headquarters (Chile, Costa Rica, Guatemala, Haiti, Peru, Spain, Surinam, Trinidad and Tobago, and Venezuela).

The headquarters building rated the most magazine coverage during the year, with journals on architecture, trade, and photography, among others, showing a continuing interest in it.

News and Feature Releases. A total of 175 releases were put out during the year: 70 in English, 55 in Spanish, and 50 in Portuguese. Stories were of several types. In English, for instance, 35 releases were on meetings, 14 on gifts from Governments, 9 each on World Health Day and on project agreements, and 3 on appointments of staff.

Two mat features were also put out. One was on cities, the year's World Health Day theme. The other combined the Director's re-election and the Bronfman prize award with a story on rural health. The features were distributed to 2,000 U.S., 900 Canadian, and 650 Latin American editors, and also, as a photo feature, to 200 Brazilian editors.

Radio and Television. For these important communication channels the Information Office relies mostly on the coverage given through the U.S. Information Agency. Such was the case, for instance, with radio coverage of the International Conference on Vaccines and the malaria seminar.

In TV, the Office worked with USIA on a newsfilm covering the presentation of Spain's gift to the Headquarters. It also arranged to make the footage of the Director at a project in Ecuador.

The Office produced four TV spots—two on World Health Day and two others titled "Health in 1967" and "Alliance's Fifth Anniversary Is Marked in Hemisphere Health Building." The films were sent out with a suggested script, but without sound, to approximately 50 stations in Latin America. During the year a survey made to test these stations' response to the newsfilms showed favorable reception by users.

"Health Comes First," a PASB-produced film made the previous year, was edited down to 25 minutes, a good

length for showing to the general public. Four copies of the short version were made.

Information Literature

Five issues of the *PI Newsletter* were put out in English and in Spanish. To meet a special request from the American Association for World Health, 10,000 copies of the *Newsletter* devoted to the opening of the new Headquarters were reprinted. A survey was made during the year to test readership response to the *Newsletter* in both English and Spanish. Replies were favorable.

A booklet entitled "Toward a Better City for Man" was produced in English and in Spanish (2,400 copies in each language).

Other Activities

More than 1,300 inquiries for nontechnical information were answered during 1966. Also, 196,000 pieces of literature were sent out in about 43,800 kits. A total of 3,700 copies of photos were distributed.

The Information Office loaned out 77 films to schools, colleges, citizen groups, government agencies, and other organizations. It now has 25 titles in its film library, with five added during the year. The news titles were: "Man Alive," "Doctors in the Making," "Speciosa," "Visit in the Desert," and "Operation Beheira." In addition, two prints of NBC's newsfilm on Incaparina were acquired for showing to special groups.

One result of the publicity given the new Headquarters was the large number of requests received for briefing programs on the work of PAHO and for tours of the building. Newsmen, architects, public health officials, fellows, students, and citizen groups were among those serviced by information staff.

The program of internal information aimed at keeping staff members abreast of events of interest was continued; 17 information memos were sent out during the year.

Visual Aids

During the year the visual aids service prepared seven exhibits, including a large one on the water supply program in Latin America, displayed during the 94th Annual Meeting of the American Public Health Association held in San Francisco, California, 31 October–4 November 1966. A similar exhibit was prepared for display at Headquarters and was later sent to Zone III for the X Congress of the Inter-American Association of Sanitary Engineering (AIDIS), held in San Salvador, El Salvador, 4–10 December 1966.

VI. PUBLICATIONS AND INFORMATION

For each of the eight teaching filmstrips produced in Spanish or Portuguese during 1966, an average of 75 frames and an accompanying narrative were prepared. A total of 295 color drawings were prepared and/or adapted for this purpose. (See Chapter III, Schools of Public Health, for details in the filmstrips program.)

Service continued to be rendered to all offices of the PASB in the preparation of visual media, which in 1966 included the following: 843 maps, charts, graphs, and other designs; 6,628 copies of drawings; 354 signs and captions lettered; 15 projection slides prepared; 423 projection slides distributed; 2 posters designed; 239 photographs captioned and classified; 230 photographs supplied; 1,032 printer's negatives supplied; drawings for 65 publications.

Consultant services continued to be provided in Brazil to SUDENE (Superintendency of Development of the Northeast) in the organization of a visual aids unit.

Library

The Library continued its efforts to enlarge its collection of materials in the health-related sciences, especially

with reference to the Latin American countries, and to correlate these materials with the needs of the staff of the Organization. It also rendered services to other institutions, both official and private, as well as to researchers and students who called on the Library for reference materials.

Requests from the Zone Offices and field staff for publications, bibliographies, Xerox reproductions of material, and the acquisition of books and periodical literature again received special attention.

During the year the Library acquired 6,629 items: 1,377 books and pamphlets; 2,784 issues of periodicals (32 of which were new titles); and 2,468 WHO documents and publications. It discarded 2,662 publications, which were donated to other libraries. Ninety-four Agreements were added to the Archives. A total of 12,239 new catalog cards were made out; 3,591 reference requests were serviced; and 10,936 pages of Xerox copy were supplied in response to requests.

Since June the Library has been responsible for the distribution of WHO mimeographed documents to the staff of the Bureau and of other agencies.

VII. ORGANIZATION AND ADMINISTRATION

GOVERNING BODIES

In 1966 the XVII Pan American Sanitary Conference was held for the first time in the new headquarters building (26 September-7 October); the 54th Meeting (18-22 April) and 55th Meeting (7 October) of the Executive Committee were also held during the year.

Pan American Sanitary Conference

Representatives of the following Governments attended the XVII Pan American Sanitary Conference (XVIII Meeting of the Regional Committee of the World Health Organization for the Americas): Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, France, Guatemala, Haiti, Honduras, Jamaica, Kingdom of the Netherlands, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, United Kingdom, United States of America, Uruguay, and Venezuela. The Government of Guyana, as a Member of the Regional Committee, sent a delegation. The Government of Canada designated official observers. The Director-General and the Assistant Director-General of the World Health Organization attended, as did observers from the Organization of American States, the United Nations, the United Nations Food and Agriculture Organization, the International Labour Organization, and the United Nations Children's Fund. Observers from 15 nongovernmental organizations and other interested institutions were also present.

The Chief of the Delegation of Colombia was elected President of the Conference, and the Chiefs of the Delegations of the United States of America and of El Salvador were elected Vice-Presidents.

The inaugural session was held on 26 September. The session was opened by the Minister of Health of Brazil, Acting President of the Conference. Addresses were delivered by the Secretary General of the OAS, the Director-General of the WHO, the Surgeon General of the United

States Public Health Service, and the Director of the PASB.

The Conference also held 13 plenary sessions; the Committee on Credentials held five; the General Committee seven; Committee I six; and Committee II five. Two days were devoted to the Technical Discussions. The Conference approved 40 resolutions.

During the third to eighth plenary sessions, the Governments presented their reports on health conditions and progress achieved since the XVI Conference.

At its eighth plenary session, 29 September, the Conference elected the Director of the Pan American Sanitary Bureau for a term of four years, beginning 1 February 1967.

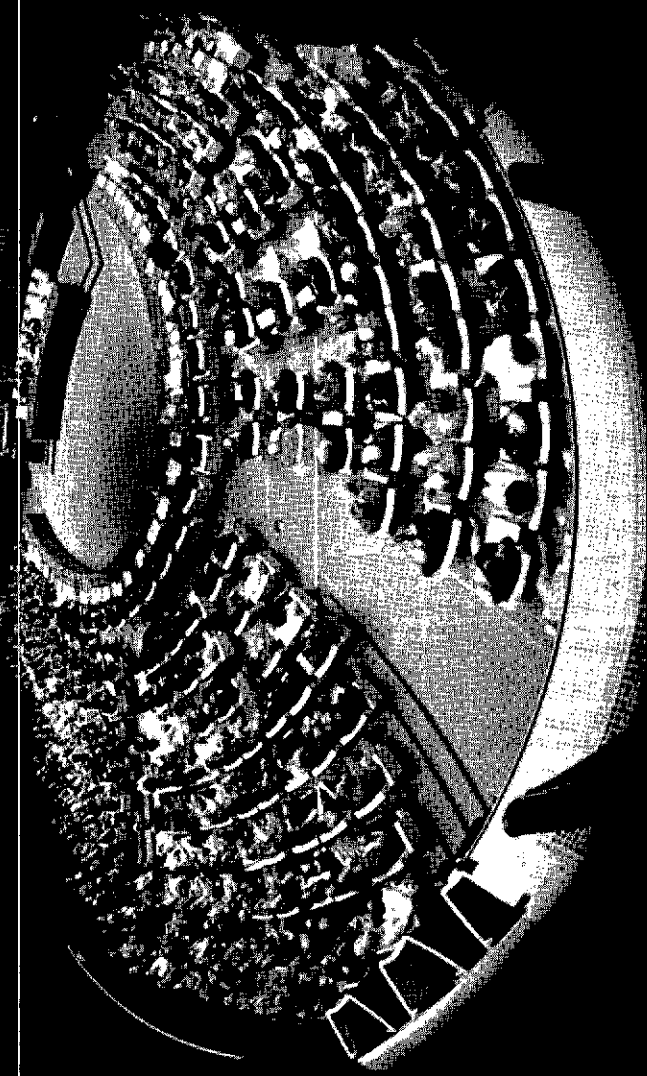
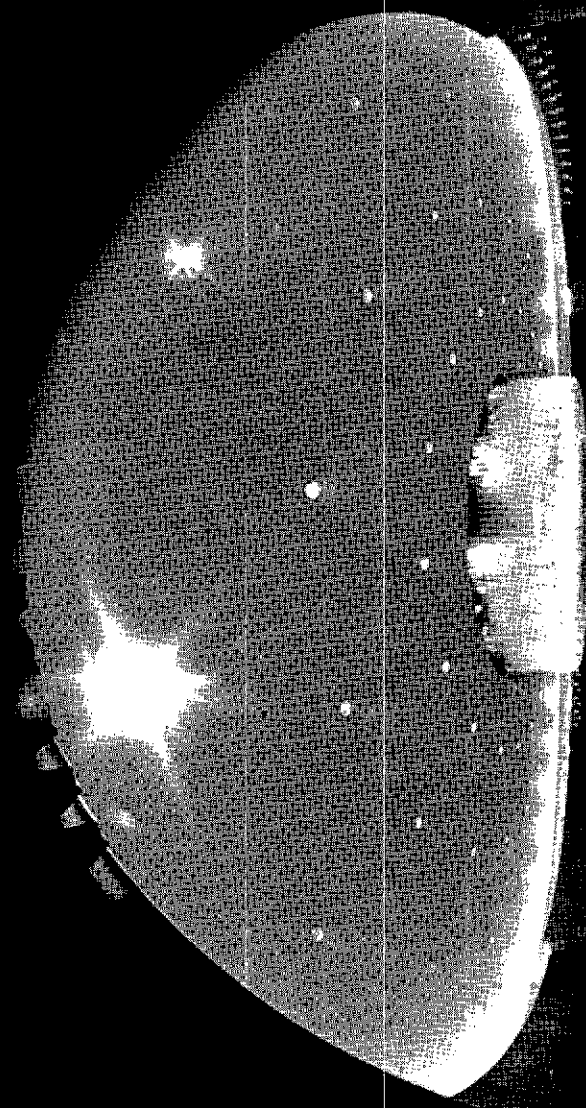
The Governments of Colombia and of the United States of America were elected to the Executive Committee for a period of three years, on expiration of the terms of office of Brazil and Mexico.

The *Annual Report (1965) of the Director* and the *Quadrennial Report (1962-1965)* brought out the increasingly dynamic and progressive nature of public health activities in the Americas and revealed the bearing of these activities on economic, social, and cultural factors basic to the development of the Hemisphere.

After a detailed examination of the proposed program and budget of PAHO for 1967, the Conference approved a regular budget of \$9,115,680, in accordance with the recommendation of the Executive Committee at its 54th Meeting. The Conference also took note of the PAHO proposed program and budget for 1968, which is to be submitted to the 56th Meeting of the Executive Committee and the XVII Meeting of the Directing Council.

The Conference approved the regional programs proposed for the WHO Technical Assistance Program in 1967-1968, and decided to support their presentation to the Inter-Agency Consultative Board of the United Nations Development Program, and to urge the Governments to ask for more health projects under this program in the future.

After studying the report on the status of malaria erad-



Plenary session, XVII Pan American Sanitary Conference, XVIII Meeting of the Regional Committee of the World Health Organization for the Americas, held at PAHO Headquarters, Washington, D.C., 26 September-7 October 1966.

ication in the Americas, the Conference expressed its satisfaction with the progress made in the administrative services of the various programs, and with efforts of the Governments to provide the necessary funds to continue the programs. It emphasized the need to improve such services in those programs where that had not already been done, and to support the Special Malaria Fund through voluntary contributions. The Conference again pointed out to the Governments the need to speed up arrangements for obtaining the funds needed for the programs, and recommended that PASB continue to carry out studies, in cooperation with the countries, to solve the biological and operational problems encountered. At the same time, it expressed its thanks for the valuable assistance that the Governments had received from PAHO, WHO, UNICEF, and the Government of the United States of America in the campaigns carried on during 1965.

The Conference urged the countries and territories already free of *Aedes aegypti* to maintain vigilance services against reinfestation by the yellow fever vector, and called upon those that were still infested to take appropriate measures to complete eradication without delay. It further urged the Director to study and apply the appropriate measures to ensure that all infested countries carry on their campaigns concurrently and in a coordinated manner.

The Conference, while reaffirming that smallpox eradication is one of the prime objectives of the Organization, noted that it must be achieved by the Governments themselves. It further recommended that the Governments assist one another in developing programs not only for eradication but also for maintenance and epidemiological surveillance. It recommended that the Governments take special care in the preparation of smallpox vaccine in order to assure that it complies with standards of potency and purity established in international regulations, and that the Director continue his efforts to coordinate those programs and to provide the countries with the essential technical advisory services for carrying them out.

The Conference recommended that the Governments undertake studies to determine the incidence and prevalence of venereal diseases; that they establish appropriate laboratory diagnostic services; that they set up and assess control programs; that they give special emphasis to the training of personnel for such work; and that they initiate health education programs in support of these campaigns.

The Conference underlined the importance of maintaining the activities of the Pan American Foot-and-Mouth Disease Center at a level enabling it to provide to

the Governments the assistance and advice needed in developing control programs. It recorded its satisfaction with the study initiated by the Director, in cooperation with officials of the OAS, to formulate a plan for the permanent and stable financing of the Center.

The Conference recommended that PAHO increase its assistance to the Governments in the development of health planning; that it continue its cooperation in the training of health planners; that it further encourage research designed to improve planning methods and encourage the exchange of information on the results of such research in the Americas and, through the WHO Headquarters in Geneva, with other Regions of the World Health Organization. It further recommended that PAHO continue its efforts, through the Director-General of WHO, to obtain assistance from the United Nations Development Program, or from other sources, in establishing a Pan American Center for Health Planning which should be organized in close association with the Latin American Institute for Economic and Social Planning.

After examining the report on the research activities of PAHO in the last four years, the Conference congratulated the Director on the results obtained and authorized him to establish a Special Fund for Research, inviting the Governments to make voluntary contributions to the Fund. It likewise requested the Director to try to increase the Fund through other voluntary contributions; that in the future funds be allocated for that purpose in the PAHO regular budget; and that a study be made of means of increasing the number of multinational centers for training and research in the life sciences and medicine. Finally, it thanked the Governments of Argentina, Brazil, and Uruguay for the contributions they offered to PAHO for the development of the research program.

After discussing the serious problem created in many Latin American countries by the migration of professional health workers, scientists, and engineers to the United States of America and to other countries, the Conference requested the Governments to strengthen their national policies designed to encourage research and training programs in health and related sciences, so as to provide incentives for their nationals to remain at home. It requested the Director to further study the role PAHO and the Governments should play in moderating those migratory movements and to report on the situation to the Directing Council.

The Conference expressed its satisfaction with the step taken to implement WHO/PAHO resolutions on health aspects of population dynamics through the creation of regional education and research centers devoted to these



Working session of Committee I, XVII Pan American Sanitary Conference, Washington, D.C., September-October 1966.

problems, and the establishment of an Office of Health and Population Dynamics, including a Population Information Center, as a part of the Pan American Sanitary Bureau.

After studying the report on the planning of hospitals and other health services, the Conference confirmed the policy formulated by the Director in connection with the medical care administration program, and recommended that the program be strengthened. It suggested to the Governments that both health and social security institutions participate in basic studies for the development of national health plans, and requested the Director to make an annual progress report to the Directing Council and to the XVIII Pan American Sanitary Conference on the organization and administration of integrated health services.

In the field of mental health, the Conference urged the PASB to promote and coordinate a research program on the frequency and distribution of alcoholism, and on the cultural patterns that are contributory to the consumption of alcoholic beverages. It further recommended to the

Director that continuing studies on epilepsy be encouraged.

The Conference recorded its satisfaction with the assistance that the PASB has been giving to the Governments in the quality control of drugs and pharmaceutical preparations, and recommended to the Director that such cooperation be increased and that arrangements be made to establish international laboratories for the analysis of such products. It thanked the Government of Uruguay for its keen interest in establishing such an international laboratory in its country, and requested the Director to convoke a meeting of specialists to study immediate and long-term needs for adequate control services in the countries of the Americas.

The Conference emphasized the importance of the program for the supply of textbooks for Latin American medical students, and authorized the Director to negotiate with the Inter-American Development Bank or other agencies to obtain financial support for the program and to report on the results of his negotiations to the Executive Committee. It further instructed the Executive Com-

mittee to approve the loan agreement if it was satisfied that the terms of the agreement were the best available.

The Conference recommended to the Governments that, in preparing plans for the training of auxiliary health workers in the various ministries, the specific functions to be performed by such personnel be determined, that the needs connected with their training be established, and that pertinent measures be adopted to implement such plans; and that at future meetings of the Directing Council the Governments submit reports on progress made in that field. It instructed the Director to assist the Governments in studying their manpower needs and in preparing instructors to train and supervise auxiliary health workers.

The Conference approved and transmitted to the Governments the Declaration and Standards concerning the International Transportation of Human Remains, recommending that the Standards be applied in the manner the Governments consider most appropriate, and that the Governments inform the Director of the measures adopted to implement them so that he might in turn inform the other Governments and the Governing Bodies of the Organization.

The Conference took note of the report on the status of quota collections, and of the Financial Report of the Director and the Report of the External Auditor for 1965. It commended the Governments on the progress made in liquidating quotas in arrears and urged them to make all possible efforts to bring their quota payments up to date.

The Conference considered the report of the Director on the Fourth Annual Meetings of the Inter-American Economic and Social Council at the Expert and the Ministerial Levels (Buenos Aires, Argentina, 15 March-1 April 1966); the Second Special Inter-American Conference (Rio de Janeiro, Brazil, 17-30 November 1965); the Meeting of the Special Committee for the Preparation of Draft Amendments to the Charter of the Organization of American States (Panama, 25 February-1 April 1966), and the Fourth Special Meeting of the IA-ECOSOC (Washington, D.C., 6-18 June 1966). It emphasized the importance of the resolutions approved in the Fourth Meeting of the IA-ECOSOC at the Ministerial Level related to the health sector. Among other things, the Conference instructed the Director to take steps to ensure that certain health problems which, because of their scope and nature call for solutions at the highest level, be included in the agenda of the Meeting of the American Chiefs of State.

The Conference unanimously approved the Annual Report of the Chairman of the Executive Committee on

the activities of that Governing Body between September 1965 and September 1966.

On 27 September 1966 the Government of Guyana deposited its instrument of adherence to the Constitution of WHO with the Office of the Secretary General of the United Nations. As a Member of the World Health Organization, Guyana sent a delegation to the XVII Pan American Sanitary Conference, XVIII Meeting of the Regional Committee of WHO for the Americas. Its delegation was formally received at the sixth plenary session on 28 September.

Technical Discussions. The Conference devoted 30 September and 1 October to discussion of the topic "Means for Promoting and Making Effective the Co-ordination between the Services and Programs of Ministries of Health, Social Security Institutes, and Other Institutions that Conduct Activities related to Health."

The Chief of the Delegation of Argentina served as Moderator of the discussions, the Delegate of Panama, as Rapporteur, and the Chief of the Medical Care Administration Branch of PASB, as Technical Secretary.

The Conference examined the Final Report* on the Technical Discussions in plenary session and recommended that the Director of the Bureau give it the widest possible circulation, and that he take appropriate steps to provide countries requesting them with advisory services in implementing the recommendations in the Report.

The topic "Methods of Increasing Health Service Coverage in Rural Areas" was selected for the Technical Discussions to be held during the XVII Meeting of the Directing Council of PAHO in 1967.

Executive Committee

At the 54th Meeting of the Executive Committee, held 18-22 April, the Governments of Brazil, Ecuador, Guatemala, Jamaica, Mexico, Panama, and Venezuela were represented. Observers from Chile, France, the Kingdom of the Netherlands, Peru, and the United States of America, as well as from the Organization of American States, also attended.

The Committee examined the proposed program and budget of PAHO for 1967 and recommended to the XVII Pan American Sanitary Conference the establishment of a budget level of \$9,115,680. It also considered several reports of a technical, financial, and administrative nature that were subsequently submitted to the Conference for consideration.

*Published in Spanish in the *Boletín de la Oficina Sanitaria Panamericana*, Vol. LXII, No. 1, pp. 1-6 (January 1967).



54th Meeting of the Executive Committee of the Pan American Health Organization, April 1966.

At its 55th Meeting, held on 7 October, the Governments of Colombia and the United States of America (new members) and of Ecuador, Jamaica, Panama, and Venezuela were represented. The Representative of Panama was elected Chairman, and the Representative of Venezuela, Vice-Chairman. It was decided to authorize the Chairman of the Executive Committee, in agreement with the Director of the Bureau, to fix the date for the 56th Meeting of the Committee.

COORDINATION WITH INTERNATIONAL AGENCIES

An international agency dedicated to serving the peoples of a region cannot remain apart from the process of economic and social development that is under way in that region. The Pan American Health Organization has, therefore, endeavored to participate actively in this process in the Americas, which are desirous of accelerating the rate of their economic growth and the improvement of their general well-being. An expression of this participation is the Organization's ever-closer relationship with the international and inter-American agencies that are collaborating in the economic and social development of the Hemisphere.

In these activities, close ties have been maintained with the Organization of American States and with its organs: the Inter-American Conference, the Pan American Union, and the Specialized Organizations.

The PAHO participated in the Fourth Annual Meetings of the Inter-American Economic and Social Council (IA-ECOSOC) at the Expert and the Ministerial Levels (Buenos Aires, Argentina, March-April 1966), to which the following documents were presented: *Facts on Progress—Health Goals in the Charter of Punta del Este*; *Health: Problems, Accomplishments, and Prospects*; and a report on the Organization's activities up to 31 December 1965. Several resolutions of interest to the Organization were approved at those meetings: permanent coordination of planning offices and improvement of planning techniques; improvement of statistics of the Latin American countries; social security within the framework of the Alliance for Progress; population; health and development planning; Statutes of the Inter-American Emergency Aid Fund; and study of the future financing of the Pan American Foot-and-Mouth Disease Center.

Activities related to the amendment of the OAS Charter deserve special mention. The Second Special Inter-American Conference, in Resolution IV, adopted certain recommendations on the coordination of activities of international and inter-American agencies. The PAHO, in its

dual role as an Inter-American Specialized Organization and the Regional Committee of WHO for the Americas, has followed closely the deliberations of the Committee on Inter-American Organizations of the OAS Council, which is responsible for studying this subject. It also took part in the work of the Special Committee for the Preparation of Draft Amendments to the Charter of the OAS (Panama, February-April 1966), in view of the pertinency of this Committee's deliberations to the juridical position of PAHO in the Inter-American System.

Working relations with the General Secretariat of the OAS and its technical departments, especially the Departments of Economic, Social, Educational, and Scientific Affairs and the Department of Technical Cooperation, have been carried on in full mutual understanding. The Organization also continued to participate in the country meetings sponsored by the Inter-American Committee on the Alliance for Progress (CIAP).

Of special importance were the negotiations with the Governments and the OAS aimed at establishing a permanent and stable system of financing for the Pan American Foot-and-Mouth Disease Center, which heretofore has been supported with funds from the Program of Technical Cooperation of the OAS. The efforts made in this regard have had the endorsement of the IA-ECOSOC and CIAP, both of which have expressed themselves in favor of supporting an advisory body for programs to control foot-and-mouth disease in the Hemisphere.

The Inter-American Development Bank has continued to show an interest in including in its credit policies the financing of health programs that form part of the economic and social development process. The representations made in this area have encouraged the policy granting loans for environmental sanitation programs, especially for rural and urban water supply, and the extension of that policy to such activities as foot-and-mouth disease control, laboratories for biological products, rural community development, construction and equipment of teaching hospitals, and advanced education. With a view to facilitating that loan policy, steps have been taken for the preparation of a general agreement between the two organizations, defining criteria, objectives, and methods.

Through the WHO, negotiations were carried out to secure a greater participation of the United Nations Development Program (UNDP) in activities in the health field, and in particular support for the Pan American Center for Health Planning and an International Laboratory for the Control of Pharmaceutical Products, in

accordance with the resolutions of the XVII Pan American Sanitary Conference.

With respect to the International Development Program sponsored by the Government of Canada on the occasion of its National Centennial, proposals were made for certain nutrition, water supply, and environmental sanitation projects for the inhabitants of the Caribbean area, and for another program to provide laboratory equipment for medical schools in Latin America.

With regard to the technical assistance offered by countries outside the Western Hemisphere, the Organization endeavored, with the aid of the Department of Technical Cooperation of the OAS, to open this important channel to the Governments for cooperation in the health sector.

In the final quarter of the year steps were taken to promote the inclusion of health subjects on the agenda of the Meeting of American Chiefs of State (Punta del Este, Uruguay, 1967).

In all these activities during the year, liaison with inter-American agencies was strengthened in order to promote acceptance of the concept of health as a component of social and economic development and the extension of international financing for health programs.

ADMINISTRATIVE MANAGEMENT

Budget and Finance

The total amount of PAHO/WHO funds budgeted for 1966 was \$20,412,076, representing an increase of 17.68 per cent over the previous year (Table 36).

The amount available from all funds was 105 per cent of the amount budgeted, with variations according to fund. Among the PAHO funds, the amount available was somewhat more than 106 per cent of the budgeted funds, the most pronounced increases being in funds available from grants both to PAHO and to INCAP. This is a fairly normal situation, since at the time of budget preparation only known grants had been included.

Total PAHO/WHO obligations in 1966 amounted to \$19,690,458, representing an increase of 18.14 per cent over 1965. This figure does not include \$360,485 expended to cover construction costs of the new building. For the second successive year funds were available for the full amount of the authorized level of the PAHO regular budget, and were utilized in full. To meet salary increases for professional staff authorized by the United Nations and adopted by WHO and PAHO, the Executive

VII. ORGANIZATION AND ADMINISTRATION

TABLE 36. PAHO/WHO FUNDS: AMOUNTS BUDGETED, AVAILABLE, AND OBLIGATED, 1966

Source of funds	Budget 1966		Amount available 1966 (U.S. dollars)	Amount obligated 1966	
	Amount (U.S. dollars) ^a	Per cent increase or decrease from 1965		Amount (U.S. dollars)	Per cent increase or decrease from 1965
Pan American Health Organization					
Regular budget.....	8,080,000	12.38	8,080,000	8,080,000	12.39
Special Malaria Fund.....	2,037,223	7.35	2,037,223	1,660,298	5.25
Community Water Supply Fund.....	377,101	— .49	474,979	400,841	126.46
Grants and other contributions.....	849,289	31.51	1,302,687	800,882	22.60
INCAP/Regular budget and grants received.....	1,332,378	37.20	1,724,834	1,570,808	38.50
OAS-Program of Technical Cooperation.....	640,000	9.79	572,788 ^b	683,199	6.84
Total.....	13,315,991	14.14	14,192,511	13,196,028	16.05
World Health Organization					
Regular budget.....	3,931,922	20.25	4,115,600	4,086,922	23.23
Malaria Eradication Special Account.....	813,116	19.15	755,030	549,344	4.11
UNDP-Technical Assistance.....	1,413,430	15.52	1,439,900	1,404,573	22.75
UNDP-Special Fund.....	913,914	81.60	792,740	361,189	53.40
Other.....	23,703	—	154,900	92,402	28.42
Total.....	7,096,085	24.95	7,258,170	6,494,430	22.64
PAHO/WHO Total.....	20,412,076	17.68	21,450,681	19,690,458	18.14

— None.

^a As shown in *Official Document PAHO 67*.

^b Excluding account receivable of \$110,411.

Committee approved the transfer to Parts I, II, and III of the PAHO budget of \$260,000 from Part V, thereby reducing the budgeted amount for increasing the Working Capital Fund to \$40,000. In accordance with the agreement with the W. K. Kellogg Foundation, an amount of \$250,000 was transferred to the Special Fund for Health Promotion to finance expanded program activities in water supply, nutrition, and education. This is the approved method for repayment of the generous loan of \$5,000,000 toward construction of the new building.

Special Malaria Fund expenditures were slightly higher in 1966 than in 1965. Expenditures for the Community Water Supply Fund increased considerably over those in 1965.

PAHO grants and other contributions in 1966 exceeded the amount in 1965. An even greater increase in grants was registered by INCAP, owing primarily to a large nutrition survey in Central America and Panama carried out with grant funds from the National Institutes of Health, U.S. Public Health Service.

A high percentage of the WHO funds was used, but some of the projects to be carried out with UN Special Fund assistance were delayed in starting.

The Pan American Health Organization remains in

sound financial condition. The External Auditor stated in his report: "The financial situation of the Organization has not been as sound since 1951, as it was at the end of 1966." The Working Capital Fund reached \$3,343,876, or 36.67 per cent of the 1967 authorized budget level. This percentage is the highest reached since the beginning of 1958. A study over the five-year period 1962-1966 showed that the withdrawals from the Working Capital Fund to finance operations pending receipt of quotas usually rise to about 35 per cent of the budget by the end of June. To provide an additional margin of safety in case the large quota payments normally received in July are delayed until August, the Working Capital Fund target figure should be 40 per cent of the budget.

Following the policy adopted in 1962, reserves have been increased steadily in PAHO and in INCAP to provide against liabilities which would arise in the event of program reductions or terminations. The PAHO reserve protects all programs in which the staff members are employed under PAHO contracts. A separate reserve is maintained at INCAP to cover staff members employed under INCAP contracts. During 1966 increases were made in both reserves.

Quota payments for 1966 improved by 2 per cent for

current quotas and by 11 per cent for arrears, as compared with 1965. Consequently, the income for 1966 represented 106 per cent of the authorized appropriation. The excess of income over expenditure amounted to \$488,019, which was transferred to the Working Capital Fund, in addition to \$40,437 budgeted in Part V for increasing the Fund.

During 1966 the system of program budgeting was continued with some improvements but no basic change. Continued improvements were made in methods employed in the financial services.

Management and Personnel

The total staff strength of the Organization at the close of business on 31 December 1966 was 1,125 (1,033 in 1965), including 30 temporary employees and 27 short-term consultants. Of the 1,068 regular staff members, 260 were stationed at Headquarters and 808 in the field.

A total of 808 persons were appointed during 1966. Among them, appointed as regular staff members were 80 professionals and 82 general service employees. Of the remainder, 517 were short-term consultants and temporary advisers and 129 were conference and general service temporary employees hired during peak workload periods and meetings of the Governing Bodies of the Organization.

The classification of all positions within the Organization was continually reviewed, in order to ensure that post descriptions were current and properly defined. A total of 309 classification actions were processed, involving the preparation and classification of 133 post descriptions, redefinition of 115, and reclassification of 61 posts.

Amendments to the PASB/WHO Staff Rules, other than minor editorial changes, included a complete revision of the professional salary scale and a corresponding revision of the post-adjustment scale applicable to those positions, the latter representing the first change since 1962; an increase of \$100 in the maximum rate for the educational grant; and provision for placing on sick leave a staff member whose presence at work might be a hazard to his colleagues or to himself.

Local salary scale revisions were approved during 1966 for Rio de Janeiro, Brazil; Bogotá, Colombia; Port-au-Prince, Haiti; Mexico City, Mexico; Lima, Peru; Caracas, Venezuela; and Washington, D. C., U.S.A.

On the basis of studies of cost-of-living factors for each area, post-adjustment classes for professional staff were revised for Argentina, Brazil, British Honduras, Chile, Colombia, Ecuador, El Salvador, Honduras, Para-

guay, and Peru. In accordance with reviews made toward the end of the year, further revisions were scheduled for January 1967 for Brazil, British Honduras, Colombia, Martinique, and Panama.

Data Processing

New and significant steps were taken toward the full automation of all administrative processes. During the year applications of the electronic data-processing techniques were increased in the personnel area. Among the activities so processed are the preparation of personnel actions, post lists, staff strength reports, and nationality distribution reports. In addition, automation of the recruitment system was initiated. When it is completed, more than 2,500 applications for positions with the Organization will have been coded and translated to magnetic tape. The system will provide for an interpreted print-out, in narrative form, of all or part of the master file, using as the basis for selection any predetermined combination of qualifications.

The analysis and systematization of the Pension Fund information and the subsequent preparation of year-end reports by the computer resulted in highly accurate and timely reporting. The Finance Section realized great savings in manpower in the final preparation of these reports, and PAHO/WHO became the first agency within the UN Pension Fund scheme to produce them by means of a computer.

During 1966 the number of employees payrolled through the Washington Office increased by 30 per cent, and the use of the computer made possible the absorption of this extra load without increases in manpower.

Data-processing services were given to various branches in the Washington Office. Studies were completed and a system was fully developed for the implementation of data processing in the Fellowships Branch, and a complete manual for this system was prepared.

For the Inter-American Investigation of Mortality, more than 43,000 records containing statistical data were processed and several tables were produced correlating the data in various ways.

The Medical Care Administration Branch conducted a pilot study on hospital discharges and the data were analyzed for the production of statistical tables.

A system was designed for application in the Evaluation and Reports Office, and 1967 was set as the target date for the production of sample reports. The corresponding manual containing tables for coding data was also prepared.

Services and Supply

The procurement activity reported by the Supply Service included the processing of 14,009 line items valued at \$3,731,652 and covered by more than 2,500 purchase orders and proforma invoices. The steady yearly increase in workload, as reported in previous years, was again evident in 1966 and it became necessary to introduce a change in the procurement responsibility in order to avoid staff increases and keep overhead costs to a minimum. By agreement, WHO Headquarters in Geneva undertook to do their own purchasing in the Hemisphere, requesting assistance only when absolutely essential. Such purchases over the past years had represented some 3,000 to 4,000 line items and were increasing steadily.

As in the past, requests from Governments for purchases against the Emergency Revolving Fund were given top priority. Purchases made in 1966 included a total of 615,000 doses of poliomyelitis vaccine for Argentina, Grenada, Guatemala, Honduras, and Nicaragua; 251,000 doses of BCG vaccine for Chile, the Dominican Republic, and Nicaragua; 6,600 doses of cholera vaccine for Cuba, Guatemala, Nicaragua, and Venezuela; 100,000 doses of diphtheria-pertussis toxoid for Venezuela; and 120,000 doses of typhoid-paratyphoid vaccine for Venezuela. Requests for various other types of vaccines and sera were filled for the Dominican Republic, Guatemala, Nicaragua, and Venezuela.

The volume of work in other general service areas also increased significantly over that of prior years. Especially evident were heavy increases in shipments, mail, printing, and reproduction both by internal processes and under outside contracts, and in the many miscellaneous services related to the new headquarters building. Among the latter were the services furnished for 63 meetings held during the year, including the XVII Pan American Sanitary Conference and the First International Conference on Vaccines against Viral and Rickettsial Diseases in Man.

Headquarters Building

During 1966 many adjustments were required following occupancy of the newly constructed building. Numerous meetings were held with the architects and contractors regarding final acceptance of the building and its mechanical equipment. Detailed surveys of the construction work and thorough tests of the mechanical equip-

ment disclosed various discrepancies which were rectified before final acceptance.

Of special importance was the necessity of modifying the heating and air-conditioning system to ensure proper temperature and humidity control. On the advice of top engineering consultants, various components of the original system were isolated to establish four separate air zones and two separate water zones. With this change, it is now possible to provide selective heating for one zone and air-conditioning for another, which has resulted in a higher degree of comfort for all occupants regardless of location.

During the year the Organization received 20 objects of art from Governments. The various paintings, sculptures, and other pieces are on permanent display in the building.

Meeting and Translating Services

The translation services provided during 1966 included 6,097 pages translated into Spanish, 3,444 into English, and 1,497 into Portuguese: a total of 11,038 pages (11,931 in 1965).

In addition to the advice and assistance given at the meetings of the PAHO Governing Bodies, the Conference Section assisted in the planning of seminars and other meetings.

ZONE AND FIELD OFFICES

The effort to implement better management procedures at all levels, including the Zone and Field Offices and the Country Representative Offices, is a continuing process. During the year management reviews were made in Zone Offices IV and V in order to introduce improved processes where warranted. In addition, the services of the Organization's administrative methods consultants were made available to all Zone Offices as needed. Adjustments were made in the *PAHO/WHO Country Representative Manual* to bring it into accord with new systems and procedures resulting from the administrative rationalization effected over the past few years.

The quarters for the Zone Offices remained unchanged. Nevertheless, their suitability to meet the changing needs of the Organization continues to be reviewed periodically.

VIII. PROJECT ACTIVITIES

This chapter contains information on projects—begun, continued, or finished—in the Americas in 1966 with PAHO/WHO assistance. Unless otherwise specified, the information applies to the calendar year.

Country projects are arranged alphabetically, followed by AMRO (inter-country or inter-zone), and by inter-regional projects. The number in parentheses corresponds to the old classification.

A *country-project* objective states the purpose for which it was undertaken by the Government concerned and is not related to the form or extent of PAHO/WHO assistance. An *AMRO-project* objective states the goal, or goals, sought by the Organization.

As to projects that include *Fellowships* in the title, the awarding of fellowships itself constitutes the objective of each of those projects; other fellowship awards are shown with the project of which they are part.

The Pan American Sanitary Bureau operates basically with funds from the regular budgets of the Pan American Health Organization and the World Health Organization. Monies received from other sources are channeled either through PAHO or WHO. Below each project description the sources of funds is shown at left and cooperating agencies at right, as applicable.

The following acronyms are used to identify the source of funds:

PAHO/RB	Regular budget of the Pan American Health Organization
PAHO/CWSF	Community Water Supply Fund
PAHO/SFHP	Special Fund for Health Promotion
PAHO/SMF	Special Malaria Fund
PAHO/G	Grant, followed by name or acronym of name of grantor
PAHO/OF	Other funds
PAHO/INCAP	Institute of Nutrition of Central America and Panama
PAHO/OAS-PTC	Organization of American States, Program of Technical Cooperation
WHO/RB	Regular budget of the World Health Organization

WHO/MESA	Malaria Eradication Special Account
WHO/UN-TA	United Nations, Technical Assistance Program
WHO/UN-DP	United Nations, Development Program
WHO/OF	Other funds

Other acronyms—and their respective full names—used in the *Report* appear on page iv and in the index.

ARGENTINA-0200 (-8), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1972, year when the consolidation phase is expected to be completed.

Assistance provided: Advisory services by Headquarters staff; antimalaria drugs; and 1 fellowship to study malaria in El Salvador, Mexico, and Venezuela.

Work done: 117,684 house-sprays were performed. Geographic reconnaissance activities in the Province of Formosa were finished. Blood smears examined totaled 210,497; of the 413 (0.2%) positive, 55 were from areas in maintenance phase and 61 from consolidation-phase areas. This program was still under financial difficulties and experienced a slight increase in incidence in 1966, compared with the previous year.

The Department of Malaria and Yellow Fever (DIP-ALFA), a new organization responsible for malaria eradication and vigilance activities against the urban vector of yellow fever, was also charged with responsibility for a new campaign directed against Chagas-Mazza disease. The director of the malaria service will serve as director of the organization as well, but in other respects the two services are to be kept separate.

PAHO/SMF

UNICEF

ARGENTINA-0300 (-2), Smallpox Eradication

Objective: To intensify vaccination programs in the country and increase the production of smallpox vaccine.

Probable duration: 1954-

Assistance provided: Advisory services by personnel of projects AMRO-0106 and -0300.

Work done: Because of the outbreak of a smallpox epidemic in the Province of Corrientes in 1965, an emergency

VIII. PROJECT ACTIVITIES

vaccination campaign was launched in which 4,007,797 persons were vaccinated. In 1966, 852,927 vaccinations were performed in the country. Twenty-one cases of smallpox were reported.

The freeze-drying equipment donated by the Organization to the National Institute of Microbiology of Buenos Aires, for the production in the country of the freeze-dried smallpox vaccine needed to vaccinate at least 80% of the total population of Argentina within 4 years, arrived at the Institute in mid-1966. The first batch of freeze-dried vaccine was produced in the second half of the year and at year-end was undergoing tests for potency, purity, and other qualities.

A draft was prepared of an agreement between the Government of Argentina and the Pan American Health Organization for a smallpox eradication program.

ARGENTINA-0400 (-20), Tuberculosis Control

Objective: To organize and develop in the demonstration area of the Province of Santa Fe a National Tuberculosis Control Center for the following purposes: to obtain epidemiological data, apply and evaluate tuberculosis control methods, and train personnel from Argentina and from other countries.

Probable duration: 1960-1968.

Assistance provided: Advisory services by staff of the Zone VI Office and by the personnel assigned to project AMRO-0400; and one 12-month fellowship to study public health administration (tuberculosis), in Venezuela.

Work done: Satisfactory progress toward achievement of the objective of the program in the demonstration area continued, including tuberculosis control and training activities.

From January to September, control activities included 16,290 tuberculin tests (83% of the goal), 12,060 BCG vaccinations (61.5% of the goal), 20,173 photofluorographic examinations (with 1% positive findings), 169 cases detected (69% of the goal), and 615 sputum examinations.

The following training activities were carried out: 6 courses for medical and auxiliary personnel; one 3-week course for statistical auxiliaries of health establishments, conducted for 7 students from 5 provinces; one 1-week course for 6 nursing auxiliaries from the demonstration area; one 8-week course for 9 physicians from 7 provinces; one 2-week course for 9 students from university nursing schools; one 1-month course for 15 visiting nurses from 8 provinces; and one 1-month course for laboratory personnel, in which 2 foreign fellows participated (Chile and Paraguay).

PAHO/RB, WHO/RB

UNICEF

ARGENTINA-0500 (-28), Leprosy Control

Objective: To organize and put into practice a national leprosy control program which will include pertinent evaluation procedures.

Probable duration: 1960-1968.

Assistance provided: Advisory services by personnel as-

signed to projects AMRO-0500 and -0508, and by the leprologist of project AMRO-0506; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Public health administration	Brazil	11
1	Communicable diseases	Brazil, Ecuador, Venezuela	3

Work done: As of 30 June this program, which comprised the Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta (as of 1 January), Santa Fe, and Tucumán, had registered 9,173 leprosy cases in these 8 provinces. Of the 5,482 leprosy patients under regular surveillance, 124 were under 15 years of age. In this group, the distribution of clinical forms of the disease was: lepromatous, 2,875; tuberculoid, 1,601; indeterminate, 803; and other forms, 203; 956 were receiving hospital treatment and 4,526 ambulatory treatment. The number of contacts of the cases registered and under surveillance was 19,233, of which 12,331 were under surveillance.

During the year's first semester, 310 new cases of leprosy were detected in those provinces: 115 lepromatous, 125 tuberculoid, 40 indeterminate, and 30 of nonspecific form; 171 patients were men, and only 7 of the cases were found in children under 15 years of age. The following forms of physical disability were found: dermatrophic, 17 cases; miotrophic, 8; osteotrophic, 4; and ocular impairment, 3.

By the end of September the number of cases registered for the whole country had increased to 13,137, of which 6,537 were hospitalized (22.3%) and 5,078 were receiving ambulatory treatment (77.7%), but as of the end of the year PASB had not received further details. A new evaluation was made of the system for recording statistical data related to the leprosy control program, with a view to determining its practical value, and the findings at the end of 2 years since introducing the system demonstrated its usefulness and advantages.

Toward the end of the year, the directors of the leprosy control program carried out a study on the work performed, analyzing the objectives, achievements, administrative structure and failures of the program, and, finally, determining the costs of the activities performed. The results of the study served as guidelines for the preparation of a new draft Agreement between the Government and the Organization.

WHO/RB

UNICEF

ARGENTINA-0700, Pan American Zoonoses Center

Objective: To strengthen the Pan American Zoonoses Center and expand its technical facilities for research, training, and the development of studies and field demonstration programs, in order to provide better advisory services to the animal health and sanitation services in Argentina and those of other countries in the Hemisphere.

Probable duration: 1966-1971.

Assistance provided: 1 chief technical adviser and consultant services by the Center's personnel (AMRO-0700).

Work done: On 13 January the United Nations Develop-

ment Program approved the project for cooperation with the Center, whose Plan of Operations was signed on 5 September by the Government authorities, the UNDP, and the Organization. In accordance with what the first phase of the project calls for, the Government released the new laboratory installations, located in the buildings of the Health Institutes in Ramos Mejía, Province of Buenos Aires, to the Center and the latter moved into the premises on 15 September.

As part of its commitment the Organization undertook negotiations for contracting the services of experts envisaged in the project, a task completed in November when the 8 consultants specified in the Plan of Operations were appointed. Lists of equipment and supplies for each of the programs of the Center were also prepared.

WHO/UN-TA

ARGENTINA-2200 (-29), Water Supplies

Objective: To prepare and carry out plans for the construction or expansion of water supply and sewerage systems.

Probable duration: 1960-1971.

Assistance provided: 1 sanitary engineer, 2 short-term consultants, and advisory services by professional personnel from Headquarters and from project AMRO-2106.

Work done: National Sanitation Works (OSN), the national water authority, continued its work in the urban areas and on the enlargement of the water supply plant at Buenos Aires. A contract was awarded to a consulting engineering firm for a feasibility study to provide water for a large area in the central part of the country. Funds for this study were provided by the Agency for International Development. The National Potable Water and Rural Sanitation Service (SNAP), which functions under the Ministry of Public Health, continued to develop its organization and carry forward the national plan, dealing directly with the provinces, and at year's end the plan embraced 21 provinces and only the Province of Buenos Aires had not signed the basic agreement with the National Government. Eleven provinces established administrations to implement programs for which the designs had been found adequate. Community organization progressed to the extent that social and economic surveys were carried out in 162 communities, cooperatives were legally incorporated in 65, and were in full operation in 63. In summary, SNAP received some 60 preliminary studies and 58 complete engineering plans and budgetary estimates, and many more were in preparation. SNAP called for bids on 7 projects which had received engineering approval.

Several short courses for community development workers were held by provincial organizations with active support from SNAP.

PAHO/RB, PAHO/CWSF

ARGENTINA-3100, Health Services

Objective: To improve the activities of the Ministry of Public Health in matters relating to health planning, re-

search, and the supervision and evaluation of personnel training programs.

Probable duration: 1966-1968.

Assistance provided: 1 medical adviser and 3 short-term consultants; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Epidemiology	Brazil	11
1	Ditto	Chile	6½

Work done: The plan for dividing the country into health regions was completed and submitted to the President of the Republic for signature together with a bill of law authorizing the transfer of the federal services to the provincial health ministries.

The Ministry of Public Health implemented a simplified organizational plan which reduced the former 14 Government bureaus to 6, now headed by newly appointed full-time personnel. Technical staff at the provincial health delegation level was increased, and 80% of the positions were filled with public health physicians. A Technical Council, which meets frequently, is in charge of coordinating activities at the Ministry level. Health planning was instituted in 2 provinces, and will be extended gradually to the others, in preparation for which short courses in planning were conducted for provincial personnel.

PAHO/RB, WHO/RB

ARGENTINA-3101, Fellowships for Health Services

Awards	Field of study	Place of study	Months
2	Clinical and social pediatrics	Chile	3
2	Environmental sanitation (ground water development)	Ditto	½
1	Epidemiology	United States of America	12
2	Health education	Chile	12
1	Hospital administration	Puerto Rico, United States of America	1¾
2	Laboratory services (smallpox)	Brazil	¾
1	Maternal and child health	Chile	10
1	Medical use of radioactive isotopes	Ditto	7
1	Nursing education teaching	Mexico	10
1	Nursing services	Brazil	10
1	Nutrition	Guatemala	2½
1	Ditto	Ditto	3¾
1	Organization of medical education (epidemiology)	Chile	10
2	Public administration	Costa Rica, Puerto Rico, Venezuela	4
1	Venereal diseases (serology)	United States of America	4
1	Yellow fever (pathology)	Brazil, Colombia	3

WHO/RB

ARGENTINA-3102 (-7), Health Services in the Northwest

Objective: To plan and carry out an integrated health services program under the provincial health services of the Northwest of the country; to train professional and auxiliary personnel; and to draft for each Service a health code and supporting legislation.

Probable duration: 1957-1969.

Assistance provided: 1 medical adviser, 1 sanitary engineer, and 1 public health nurse.

Work done: The technical staff and authorities of the national Ministry of Public Health and of the health ministries of the 4 provinces in the Northwest of Argentina laid the groundwork for the expansion of this project to include the Provinces of Catamarca, Jujuy, Salta, and Santiago del Estero, in addition to El Chaco and Tucumán. Medical staff trained in public health had already been appointed to direct the health programs in most of these provinces.

In El Chaco Province standards were prepared and put into effect for most of the activities to be performed by the network of services of the Provincial Health Ministry. Three rural water supply projects were sent to the national Ministry of Public Health. One community signed an agreement for the conduct of the rural water supply program and 8 others were organizing themselves to participate in the program.

In Salta Province a plan of operation was prepared for reorganization of the health services beginning in 1967, and a study was made of the organization and administrative methods of the Provincial Health Ministry. A total of 117,281 persons were vaccinated against yellow fever and 83,931 against smallpox. Twelve rural water supply projects were sent to the national Ministry of Public Health, where their review was begun.

Personnel from the Provinces of Catamarca and Santiago del Estero were receiving technical training for the purpose of organizing the health services of these 2 provinces. In Jujuy Province a network of facilities was being set up to provide health services for the entire population.

A Bureau of Health Planning was established in Tucumán Province and a budget drawn up for the 1967 program. Regulations were drafted for the organization of provincial water supplies, and the national program to supply water to rural communities of 100 to 3,000 inhabitants was set in motion. Appointments were decreed to the directorships of the 6 most important hospitals and the cost accounting system was instituted in all health care establishments of the Provincial Health Ministry. A plan of operations was completed for the integrated program of applied nutrition. The 1965 data on vital statistics, hospital activities, morbidity, and maternal and child health programs were published. A trachoma survey among the school population was begun, and the preliminary results pointed to a considerable incidence of the disease. The technical and administrative reorganization of the outpatient department for respiratory diseases was begun, its activities program was established, and its participation in research and personnel training was defined. In the field of environmental sanitation, 13 persons trained in the previous year were appointed as sanitation officials and 15 projects and draft projects for rural community water supply systems were sent to the national

Ministry of Public Health. Another 15 communities were organized to cooperate in the water supply program. The different parts of the public health program were advanced to a varying extent in the 27 child health centers, 17 of them in the capital.

Training activities under this project included the following courses: 2 in hospital costs (1 week each) for 32 hospital directors and 36 administrative or statistical employees, respectively; 1 in health education (1 month) for 47 odontologists; 3 nursing auxiliary courses (an average of 10 months each) for 78 students; also, one 12-month course for 21 students in El Chaco Province, and one 10-month course for 26 students in Salta Province; 1 in nursing administration and supervision (7 weeks) for 22 graduate nurses; 3 in community promotion for water supply programs, as follows: 1 (4 weeks) for 27 teachers; 1 (10 days) in El Chaco for 64 health inspectors and teachers; and 1 in Tucumán (3½ weeks) for 14 health inspectors; several orientation courses in public health (3 to 6 weeks) for 257 elementary school teachers; 2 in the same subject (2 weeks each) for 41 midwives; 1 in the methodology of health planning (2 weeks) for 5 medical officers; and 1 (3 days) in hospital administration for 137 rural hospital directors.

WHO/UN-TA

UNICEF

ARGENTINA-3103 (-13), Fellowships for Health Services

Awards	Field of study	Place of study	Months
2	Administrative procedures for lay public health administrators	Chile	4
1	Occupational health for physicians	Ditto	10
1	Organization of medical education (pathology)	Ditto	12
1	Public administration	Ditto	4
3	Public health planning	Ditto	3½
1	Rehabilitation (orthopedic appliances)	Brazil	4

PAHO/RB, PAHO/SFHP**ARGENTINA-3104 (-35), Health Services in Cuyo Region**

Objective: To develop a program of integrated health services in the Provinces of San Juan and Mendoza.

Probable duration: 1961-

Assistance provided: 1 medical adviser, 1 sanitary engineer, 1 public health nurse, 1 short-term consultant, and advisory services by the nurse assigned to project AMRO-3206.

Work done: Environmental sanitation inspectors in Mendoza continued to work in arcas served by maternal and child care centers. The department of nursing created in June 1965 in the Provincial Ministry of Public Health was being organized. The number of graduate nurses working in the province rose from 8 in 1965 to 15 in 1966. The 2 hospitals in the capital where student nurses are given practical

experience organized their nursing services, and each was conducting a continuous inservice training program.

In San Juan Province, which was divided into health districts, the Division of Environmental Sanitation made a survey of the work done in 1965 by all offices in those health districts. A food control program was prepared and implemented in the capital and a program of activities for 1967 was prepared. Wells were drilled in the districts of López-Pizarro, Albardón, Ciénaga-Jachal, and Iglesia; and 3 wells were drilled in San Martín department and 1 in Leda Health Center. Twelve hand pumps were installed in as many schools. Coordination with the activities of other community development agencies was continued, especially in food control, garbage collection, health education, school improvement, construction of latrines and water supply systems, community organization, and personnel training. The number of graduate nurses employed in the provincial health services rose from 18 in 1965 to 22 in 1966, and the policy was adopted of filling all vacancies with properly trained personnel. Nursing services were established in the 400-bed San Roque Hospital. A reference manual was prepared on nursing activities in provincial health establishments.

In San Luis Province activities under the public health program were in the preparatory phase, and forms and instructions were prepared for a health survey of the province and to strengthen the public health services. At the central level, a nursing department was created in the bureau of medical care.

The following courses were given in connection with the project: 1 for sanitation technicians (13 months) for 22 students; 1 refresher course in public health (10 weeks) for 16 midwives; 2 for nursing auxiliaries (10 months), 1 for 18 and 21 students respectively; and 2 inservice short courses (1 month) for 38 nurses.

PAHO/RB

UNICEF

ARGENTINA-3301 (-4), National Institute of Microbiology

Objective: To expand the activities and improve the technical and scientific work of the Institute.

Probable duration: 1959-1963; 1965-

Assistance provided: 2 short-term consultants (to advise regarding the organization of 1 course on laboratory diagnosis of venereal diseases) and advisory services by Headquarters and Zone VI Office professional staff; reference strains and technical information; and 1 fellowship for ¼ month of studies of laboratory services (smallpox), in Brazil.

Work done: The National Institute of Microbiology continued its functions pertaining to diagnosis and preparation of vaccines, sera, antigens, and biological reagents, served as a reference center for other health laboratories of the country, performed basic and epidemiological research, and carried out educational activities.

Using freeze-drying equipment (provided by the Organization in 1965) the Institute produced the first test lots of smallpox vaccine. On the other hand, availing itself of the services provided by the U.S. Public Health Service Communicable Disease Center (CDC), the Institute had its serological tests evaluated.

The Institute conducted diagnostic tests for confirmation of smallpox cases in Paraguay and provided cultures to Uruguay, and supplied glycerinated smallpox and typhoid vaccine to both countries as well as diphtheria toxoids and sera.

From 17 to 28 October a Course in the Laboratory Diagnosis of Venereal Diseases was conducted with the cooperation of the CDC and PASB for 21 students: 18 from various provinces and 3 foreign fellows (2 from Brazil and 1 from Peru).

A physician of the Institute attended the Course on Laboratory Diagnosis of Smallpox which was organized by the Adolfo Lutz Institute and conducted in São Paulo, Brazil, with assistance from PASB.

WHO/RB

ARGENTINA-3500 (-32), Health Statistics

Objective: To develop an integrated program of vital and health statistics in the Province of Buenos Aires; and to establish among provincial agencies concerned with statistics a coordinated program to be used for demonstration purposes and for field practice of personnel undergoing training in statistics.

Probable duration: 1960-1971.

Assistance provided: Advisory services by the statistician assigned to project AMRO-3506; and supplies and equipment.

Work done: The Ministry of Public Health made a large increase in the budget for the Division of Health Statistics. National standards were being established for the provincial systems, and a plan was developed to strengthen the provincial statistical systems and to provide equipment to process the data in a national system, using an electronic computer. Definite progress was made in establishing adequate procedures for handling medical records and hospital statistics.

The Ministry of Public Health surveyed its need for statistical personnel and planned to train, in 5 years, 26 professionals, 320 intermediate-level technicians, and 1,560 auxiliaries. In addition, 5,000 persons will receive inservice training. National teams designed the courses for auxiliaries. Agreement has been reached with the School of Public Health to increase the annual enrollment in the course for technicians from 30 to 60.

Health planning was initiated in the Provinces of San Juan and Tucumán. Work proceeded on the collection and tabulation of data on estimates of population, analysis of mortality, estimates of morbidity, and on research on the demand and utilization of health services.

Basic forms for collecting hospital statistics were extended to various provinces.

The year's training included the following courses: 2 (9 months each) which trained 56 intermediate level statisticians; 6 on hospital statistics (1 to 6 weeks) which trained 175 auxiliaries; 1 (3 weeks) which trained auxiliaries for tuberculosis registers and statistics; and 1 (2 weeks) which trained coders in the International Classification of Diseases.

PAHO/RB

ARGENTINA-3503, Epidemiology of Cancer

Objective: To investigate in Buenos Aires the epidemiology of cancer of selected body sites.

Probable duration: 1966-1967.

Assistance provided: Contractual services.

Work done: A case-control study was designed to investigate certain epidemiological characteristics of patients with cancer of either the larynx, lung, or urinary bladder, with particular reference to residence history, occupation, smoking habits, and the use of alcohol. With the approval of the Minister of Health a part-time collaborator was appointed in Buenos Aires and the cooperation of several of the main hospitals in the city was obtained. The Pan American Sanitary Bureau provided the printed questionnaires to be used in the study.

PAHO/OF

Anna Fuller Fund

ARGENTINA-4100, Maternal and Child Health

Objective: To strengthen the national maternal and child health program; and to coordinate the activities of that program with those of the provincial ministries of health in order to establish or strengthen maternal and child health services in the provinces.

Duration: 1965-1966.

Assistance provided: 1 short-term consultant in 1965; and in 1966, 1 short-term consultant and advisory services by the consultant assigned to project Argentina-6200; and one 11-month fellowship for maternal and child health studies, in Brazil.

Work done: In 1965, a study was made of the feasibility of conducting a training course in the care of premature infants and establishing a program designed to improve facilities for the care of newborn infants.

In 1966, the Children's Institute was established in the Maternity Hospital of Córdoba, which is under the Ministry of Health of that province. The Maternity Hospital, in which there are 4,000 births per year, organized a 35-bed service for premature babies.

Training in the care of newborn and premature babies included: 1 theoretical and practical course for 26 physicians; 1 course for 14 graduate nurses; 1 for 31 nurses; and 1 for 7 practical nurses. A course on premature babies was held at the University of Córdoba for 21 student nurses.

PAHO/RB

ARGENTINA-4102, Nursing Midwifery

Objective: To develop long- and short-term programs for the training of midwives in nursing principles, child health, public health, and administration.

Probable duration: 1966-

Assistance provided: Advisory services by the nurse adviser assigned to project AMRO-3206; and one 11-month fellowship to study obstetrics (nursing services), in Puerto Rico.

Work done: One 10-week orientation course in public health (169 hours of theory and 153 of practice) was con-

ducted from October to December for 15 midwives from Health Regions I and II of San Juan Province and 1 from the federal delegation of the National Ministry of Public Health. Of these 16 midwives 13 returned to their positions in the maternity wards and health establishments of Health Regions I and II.

WHO/RB

ARGENTINA-4200, Nutrition

Objective: To reorganize the Dr. Pedro Escudero National Institute of Nutrition; to plan a national food and nutrition commission; to improve the training of personnel; and to plan the activities of the Institute of Nutrition of the Northwest.

Probable duration: 1966-1969.

Assistance provided: 1 medical nutritionist.

Work done: Administrative and legal steps were taken to bring about a reorganization of the National Institute of Nutrition, the creation of a national food and nutrition commission, and the planning of the activities of the Institute of the Northwest.

The National Institute achieved significant improvement in its training program and held 24 meetings and seminars to provide inservice training to its personnel. At the School of Dietitians, 136 of the students and 35 doctors and 400 medical students received training within a new curriculum.

Surveys on prevalent nutrition problems were carried out in Boulogne-sur-mer (Buenos Aires Province) and in the capital city of Salta.

See also project AMRO-4200.

PAHO/RB, PAHO/SFHP

ARGENTINA-4300, Mental Health

Objective: To formulate a national mental health plan and plan epidemiological research on mental illness in Argentina.

Probable duration: 1966-1968.

Assistance provided: In accordance with the provisions of the Agreement, the Organization sought to obtain the advisory services of a short-term consultant for the work of the project. However, because of the short supply of this type of specialist, it was unsuccessful.

ARGENTINA-4301, Research in Psychiatry**ARGENTINA-4302, Mental Health Research**

Objective: To investigate patterns of communication between members of families of mental patients.

Probable duration: 1964-1968.

Assistance provided: 1 grant.

Work done: A comparative study of schizophrenics and control groups was carried out to determine differences in forms of communication and reaction. By means of planned and tape-recorded interviews certain patterns of communication were detected in families containing schizophrenics,

and those occurring most frequently were described.

The characteristics of verbal expression of neurotic patients were also analyzed, with reference to both syntactic patterns and semantic disturbances. This entailed the creation of a complex and original analytical technique which proved to be useful in differentiating the verbal expressions of patients diagnosed as afflicted with obsessive, phobic, and hysterical neuroses. The techniques pertaining to the second phase of this research, in which the communication characteristics of the patient will be correlated to patterns of familial interaction, were in process of preparation.

PAHO/RB Foundations' Fund for Research in Psychiatry (Yale University)

ARGENTINA-4600, Industrial Hygiene

Objective: To define the industrial hygiene problem in greater Buenos Aires as a means of calling attention to the need of developing an official industrial hygiene program in the Ministry of Public Health, first for the Buenos Aires area and later for the nation as a whole.

Probable duration: 1966-

Assistance provided: 1 short-term consultant and consultant services by the adviser on industrial hygiene assigned to project AMRO-4600.

Work done: The Ministry of Public Health allotted M\$N2 million for a survey to determine the industrial hygiene problems prevalent in greater Buenos Aires. The air pollution problem in Mar del Plata was defined as resulting from the operation of fishmeal plants.

PAHO/RB

ARGENTINA-4800, Medical Care Service

Objective: To conduct the necessary studies and research on the problems of medical care, available material and human resources, the organization of medical welfare establishments and their possible integration with the general health services; and to train personnel in hospital administration and organization.

Probable duration: 1966-1970.

Assistance provided: 1 nurse, 1 short-term consultant, and advisory services by personnel of projects AMRO-3206 and -4806; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Hospital administration	United States of America	12
1	Ditto	Chile	9
1	Ditto	Brazil	13
1	Hospital construction	Chile	6
1	Premature-infant care	Ditto	6

Work done: Regional and local planning studies were made which included the construction, enlargement, or remodeling of 3 university hospitals, other hospitals in the Federal Capital and in provincial capitals, and 7 health centers. The international nursing personnel assisted in the teaching of the courses mentioned below and in several

studies relating to the development and administration of hospital nursing services.

The Municipality of Buenos Aires offered 1 Course in Nursing Administration, Supervision, and Education.

At San Miguel de Tucumán, one 7-week Course in the Administration of Nursing Services was conducted for 22 nurses from the hospitals in that capital and neighboring cities.

In earlier years medical care activities in Argentina were reported in project AMRO-4806.

PAHO/RB

ARGENTINA-4801, Rehabilitation

Objective: To train technicians in prosthesis and in the production of orthopedic devices; to provide opportunities for personnel engaged in these activities to improve their skills; and to spread the knowledge of new techniques and materials.

Probable duration: 1966-1968.

Work done: The Government and PAHO/WHO signed an Agreement under which assistance will be extended to the prosthetics school in the country; the necessary steps were taken to start the project in 1967.

ARGENTINA-6100 (-17), School of Public Health

Objective: To strengthen the School of Public Health of the University of Buenos Aires for the adequate preparation of professional and auxiliary health-work personnel to meet the needs of the country, in keeping with the development of health programs.

Probable duration: 1958-1970.

Assistance provided: 1 short-term consultant; contractual services; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Epidemiology	United States of America	12
1	Medical pedagogy (bacteriology)	Brazil	11½
1	Organization of public health teaching (nutrition)	Guatemala	2½
1	Public health teaching	Chile	10

Work done: The authorities concerned studied the teaching methods in the Departments of Health Administration, Epidemiology, and Nutrition and drew up plans for improvements.

WHO/RB

ARGENTINA-6200 (-18), Medical Education

Objective: To strengthen and expand medical education through adequate planning, better pedagogical approaches, and research activities.

Probable duration: 1958-1968.

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Assistance provided: 1 short-term consultant and advisory services by Headquarters and Zone VI Office personnel; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Clinical use of radioisotopes	Puerto Rico	1
2	Medical education (laboratories in human relations and medical teaching)	Uruguay	½
1	Medical education pedagogy (epidemiology)	Chile	10
1	Medical education (virology)	United States of America	3
1	Medical records librarianship	Colombia	5¼
1	Ditto	Ditto	5
1	Organization of medical education (mental health and social psychiatry)	England	7½
1	Ditto (public health administration)	United States of America	12
1	Sanitary engineering teaching (biology)	Brazil	5

Work done: The authorities of the provincial Maternity of Córdoba organized, together with the PAHO consultant, the Institute for Physical Education of Children.

Discussions were held with the pertinent authorities of the Ministry of Public Health on the methodology of the Colombian health manpower studies. The 2 schools of medicine in Buenos Aires continued studying the general organization and administration of their medical education program.

WHO/RB

ARGENTINA-6300 (-3), Nursing Education

Objective: To improve teaching in the schools of nursing of Argentina: First in the Universities of Buenos Aires, Córdoba, Litoral (Rosario), and Tucumán; later in the School of Nursing of the Army; and most recently in the Nursing School of the provincial Ministry of Health of Salta and in the School of the Ministry of Public Health.

Probable duration: 1957-

Assistance provided: 2 nurse educators and advisory services by the nurse assigned to project AMRO-3206; a small amount of equipment and supplies; and one 3-month fellowship to study nursing care of premature infants' services in Chile.

Work done: As in previous years, inservice education of school faculty members and of supervisors in health services used by the schools for the clinical experience of their students was carried out through seminars and courses in all of the schools. Evaluation and adaptations were also a part of the activities in each school.

Twenty-seven fellowships were granted by official and private agencies for students wishing to study nursing: the Ministry of Health of El Chaco granted 2; that of Mendoza, 5; of Río Negro, 1; of San Luis, 1; and of San Juan, 7; the University of Córdoba granted 4; Coca Cola, 2; and Kaiser, 5.

A report on the 6 schools of nursing already in the project in 1965 revealed that in 1966 there was an over-all increase of 11 full-time faculty members (total of 76) and that there were 168 students in the entering class, 69 students in the graduating class, and 342 students in the total enrollment.

PAHO/RB, WHO/UN-TA

ARGENTINA-6301 (-25), Training of Nursing Personnel

Objective: To carry out training courses for professional and auxiliary nursing personnel in order to improve the health services of the country.

Probable duration: 1960-1968.

Assistance provided: Advisory services by the nurse assigned to project AMRO-3206; equipment and supplies; 1 grant; and one 12-month fellowship to study public health nursing in Puerto Rico.

Work done: Although this project had made yearly progress since its first year of operations its most important achievement took place in September 1966 when, during a nurses meeting sponsored by the Government, 145 nurses established: (1) minimum standards for schools of nursing; (2) a system for supervision and control of schools of nursing; and (3) a system by which nurses who graduated from nonaccredited schools of nursing and nurses from abroad can revalidate their status as national nurses. The participants were directors of schools of nursing, chief nurses of the Ministry of Public Health or of provincial ministries of health, and the chief nurse of the Central Division of Nursing of the Municipality of Buenos Aires.

Fifteen nurses completed the course in administration, supervision, and teaching, thus raising the total with these specialties to 129. Courses for nursing auxiliaries were being conducted in 8 areas of the country.

PAHO/RB

UNICEF

ARGENTINA-6400 (-30), Sanitary Engineering Education

Objective: To strengthen teaching at the School of Sanitary Engineering of the University of Buenos Aires, in order to graduate engineers trained according to the needs of health programs.

Probable duration: 1960-1967.

Assistance provided: 5 short-term consultants and advisory services by professional personnel of Headquarters and of project AMRO-2106 and other projects of countries in Zone VI; equipment and supplies; and one ½-month fellowship to study environmental sanitation (industrial hygiene), in Chile.

Work done: The School of Sanitary Engineering of the University of Buenos Aires held its regular academic course in sanitary engineering. It also offered 5 intensive short courses: on rural potable water, from 11 to 29 April, for 47 students; on water pollution, from 13 to 23 July, for 23

students; on the design of systems of potable water supply for rural communities, from 22 August to 3 September, for 12 students; on industrial hygiene (second part), from 12 to 17 September, for 22 professionals; and on the operation of sewage treatment plants, from 12 to 21 December, for 26 students. Two seminars were held on health aspects of housing, from 3 to 7 October, with 35 participants; and on final disposal of refuse, from 28 November to 3 December, with 31 participants. The total attendance at courses and seminars was 196.

The School continued research activities and provided advisory services to national and provincial programs, as follows: project for garbage disposal and a fertilizer plant for the city of San Juan; surveys and studies on industrial health and safety in the metropolitan area of Buenos Aires, by agreement with the Ministry of Public Health; and preliminary studies on air pollution in Buenos Aires, by agreement with the Institute of Industrial Technology and the National Department of Chemistry.

At the University of Tucumán a study was begun with a view to the introduction of a program of short courses on sanitary engineering. Work continued on the preparation of a request for assistance from the United Nations Development Program for the establishment at the School of a Center for Training, Research, and Information in environmental sanitation.

PAHO/RB

ARGENTINA-6700 (-41), Training of Statistical Personnel

Objective: To train statistical personnel at the intermediate level, who will be in charge of systems of vital, hospital, and health statistics; and to improve the quality of instruction offered by the faculty of the School of Public Health of the University of Buenos Aires as well as the field demonstration areas.

Probable duration: 1965-1971.

Assistance provided: A grant; and advisory services by the statistician assigned to project AMRO-3506 and by 1 of the medical records librarians assigned to AMRO 6708.

Work done: The School of Public Health of the University of Buenos Aires expanded the 9-month curriculum to include specialization for medical records personnel at the intermediate level. A second course was begun in November with 33 students (from 11 provinces), 15 of which were being trained to do hospital statistical work. The School also conducted a 10-day course on both the administration of medical records departments and the International Classification of Diseases.

PAHO/RB

BARBADOS-2200, Water Supplies

Objective: To prepare an islandwide survey of existing water supply facilities; to plan and design new water

supply systems and improve existing ones; and to create a central authority for the management of water supply services.

Probable duration: 1964-

Assistance provided: 1 sanitary engineer and advisory services by Headquarters and Zone I Office professional personnel; and one 12-month fellowship to study sanitary engineering, in the United States of America.

Work done: 2 of the main objectives of this project were completed during the year: (a) the islandwide survey of existing water supply facilities, and (b) the collecting of basic data. About 40% of the plans and designs for new constructions and for the expansion of existing facilities were also completed.

WHO/UN-TA

BARBADOS-4801, Hospital Administration

Objective: To organize and operate the Queen Elizabeth Hospital as the central medical-care institution of Barbados and as a teaching hospital for the University of the West Indies.

Probable duration: 1965-1967.

Assistance provided: 1 expert in hospital administration, 1 short-term consultant, and advisory services by Headquarters personnel and the consultant assigned to project AMRO-4800; and one 6½-month fellowship to study hospital administration, in the United States of America.

Work done: 2 committees were organized, respectively from among the medical and the administrative staff, to improve the coordination of the services. Dietetics and Laundry Departments were established to direct activities formerly included in the Nursing Services. Codification and administration were improved in the clinical files section. Efforts were continued to prepare the Queen Elizabeth Hospital to receive medical students from the University of the West Indies.

PAHO/RB, WHO/UN-TA

BARBADOS-6300, Nursing Education

Objective: To strengthen basic and postbasic nursing education, including midwifery, in order to improve the care of patients.

Probable duration: 1965-1967.

Assistance provided: 1 nurse educator and advisory services by the nurse assigned to project AMRO-3201.

Work done: The Department of Nursing Education was established and began functioning in a renovated and fully equipped building of the former General Hospital. A Workshop on Philosophy and Objectives in Nursing Education was held in February and was attended by 25 nurses from teaching staff, hospitals, and health services.

The trained teaching staff of the School of Nursing was increased from 2 to 3 members. The School gradu-

VIII. PROJECT ACTIVITIES

ated 8 students from the 3-year basic-nursing program and 4 from the 2-year midwifery program.

Two faculty members of the School attended the Nursing Education Seminar held in Jamaica in August.

PAHO/RB

UNICEF

BOLIVIA-0200 (-4), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1971, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist and 2 sanitation inspectors; and antimalaria drugs.

Work done: 53,591 house-sprays were performed. A total of 260,145 blood smears was examined; of the 1,373 (0.5%) cases detected, 351 were from smears collected between January and November in areas in consolidation phase.

Attack measures were continued in the 4 areas in which transmission persisted: 2 frontier areas (bordering on Brazil and Argentina) and 2 in the interior of the country. The 1-year program of collective treatment carried out during 1965, which consisted of administering chloroquine-primaquine tablets at 2-week intervals, in a small focus of transmission which had resisted all other measures, finally eliminated transmission in this focus and no cases occurred in the area during 1966.

Financial difficulties restricted operations, especially as to epidemiological evaluation of the program.

PAHO/SMF

AID, UNICEF

BOLIVIA-0300 (-8), Smallpox Eradication

Objective: To complete the vaccination campaign until 80% of the population has been protected.

Probable duration: 1962-1968.

Assistance provided: 1 health inspector and advisory services by personnel of projects AMRO-0104 and -0300; and equipment and supplies.

Work done: 933,194 persons were vaccinated against smallpox during the year; of these, 279,701 were primo-vaccinations of which 19,668 were read, 95.9% being positive. From the time the campaign was initiated up to October the total number of persons vaccinated was 2,176,679 and 1,268,679 remained to be vaccinated to reach the goal of 80% of the estimated national population by June 1966. A total of 169,279 homes were visited in the first 10 months of 1966. During the same period the Institute of Microbiology produced 1,800,000 doses of freeze-dried vaccine.

The situation of the campaign was as follows. Department of La Paz, 7 provinces: vaccination completed in 6 and about to begin in the 7th; Department of Cochabamba, 13 provinces: vaccination completed in 12 and in progress in the Province of Punata; Department of Santa Cruz, 10 provinces: Vaccination completed in 8 and nearing completion in 2; Department of Pando: vaccination in progress in its 2 provinces. Lastly, vaccination was

begun last October in the 3 provinces of the Department of Tarija.

The cooperation of the National Malaria Eradication Service was enlisted in the evaluation of the work done and that of the National Army in the vaccinating work itself.

The 9 vehicles provided with Technical Assistance (United Nations) funds operated throughout the year and the 4 outboard motorboats were used to transport the vaccinators over the river routes.

A service was organized to maintain the level of immunity acquired by the population as a result of the smallpox vaccination campaign, which, unfortunately, did not reach the rural areas. A permanent epidemiological surveillance service remained to be organized.

No cases of smallpox were reported in 1966. In every suspicious case, in addition to the clinical and epidemiological examination, a laboratory test was performed with the assistance of either the National Institute of Microbiology or specialized laboratories in Lima, Peru.

Three short courses were held to train 24 vaccinators and 3 team leaders.

WHO/UN-TA

BOLIVIA-0400 (-7), Tuberculosis Control

Objective: To organize in the northern part of the Bolivian Plateau a demonstration area (consisting of the Provinces of Omasuyos, Manco Kapac, Camacho, and part of the Provinces of Ingavi and Los Andes) in order to: obtain epidemiological information, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1963-1968.

Assistance provided: Consultant services by the adviser assigned to project AMRO-0404; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Public health administration (epidemiology)	Chile	10
1	Ditto	Venezuela	5

Work done: The Ministry of Public Health adopted a National Tuberculosis Control Program, with a view to implementation at the earliest possible date. The program includes the following activities: organization of a verification area in the city of La Paz, utilizing the Health Center of that city as the base for training all personnel participating in the program; establishment of 2 advisory teams—each consisting of 1 epidemiologist, 1 statistician, 1 bacteriologist, and 1 public health nurse—whose mission will be steadily, periodically and progressively extended to all the health units of the country; and coordination of the activities of the program with those of other health agencies engaged in tuberculosis work. In order to achieve the latter objective, plans were formulated for holding a seminar in La Paz in 1967 with the cooperation of the Bureau.

Of the 34,197 tuberculin tests administered, 27,356 were

read and 14,330 were negative, and of these, 14,292 persons (99.7%) were given BCG vaccinations.

PAHO/RB, WHO/UN-TA

UNICEF

BOLIVIA-2200 (-15), Water Supplies

Objective: To prepare a national public water supply program; and to design and build municipal and rural water supply systems.

Probable duration: 1960-

Assistance provided: Advisory services by professional personnel assigned to the Zone IV Office and to other projects of Bolivia.

Work done: Further work was done to expand the water supply system of Oruro, and studies for expansion of the water supply systems of La Paz and other important cities in the country were continued. The program for the construction of small installations in small localities and rural areas was continued with the technical and financial cooperation of the U. S. Agency for International Development.

Despite the efforts that were made, by the end of the year it had not been possible to revitalize the Bureau of Sanitary Works (ABOS).

BOLIVIA-3100 (-10), National Health Services

Objective: To develop health services at both the ministerial and local levels; and to train technical and auxiliary personnel in accordance with the needs of the country.

Probable duration: 1955-1969.

Assistance provided: 1 nurse, 1 short-term consultant, and advisory services by the nurse assigned to project AMRO-3204; supplies and equipment; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Laboratory services (virology)	Brazil	10
1	Medical pedagogy (public health administration)	Mexico	10½
1	Nursing	Brazil	10
12	Ditto	Peru	¾
1	Occupational hygiene	Chile	9
2	Public health administration	Brazil	11
1	Ditto	Mexico	10½
1	Ditto	Puerto Rico	11½
1	Ditto (epidemiology)	Brazil	11
1	Public health dentistry	Ditto	11
2	Public health planning	Chile	3½
1	Sanitary engineering	Peru	¾
1	Training for teachers of dentistry (public health dentistry)	Brazil	11

Work done: The national 10-year health plan (1966-1975) was prepared by the Ministry of Public Health and approved by Executive Decree. Its initial stages will be

carried out in the Departments of Cochabamba and Tarija, and a detailed plan of action was drawn up for the purpose. The Ministry was reorganized in accordance with the national plan to achieve the technical and administrative decentralization of each of the 10 health units into which the country has been divided. A Community Development Division was established to plan, supervise, coordinate, and evaluate health programs, particularly those of rural areas.

The working relations of this project were expanded to include several agencies operating in the health sector but not connected with the Ministry, such as the Bolivian Mining Company, the Railway Service, the School of Veterinary Medicine in Santa Cruz, the School of Dentistry of San Andrés University, and the Universities of Oruro and Cochabamba.

The National Institute of Occupational Health initiated a program of radiation protection, and a sampling station was in operation. The Institute of Animal Biochemistry requested and obtained advice from PASB in its program for the production of foot-and-mouth disease vaccine. The Rehabilitation Institute of the National Social Security Fund was given advisory services in medical rehabilitation, personnel training, and the production of prosthetic and orthopedic devices.

In the Departments of Cochabamba and Tarija basic data was gathered for a health study and an estimate was made of the probable coverage of the program by the usual means in both accessible and inaccessible areas. Intensive smallpox vaccination programs were conducted and measures were taken to control outbreaks of measles and typhus fever. Mothers' clubs began operating in 5 localities, and talks on health education were given in secondary schools. Also the manufacture of tiles for sanitary latrines was begun.

Targets and accomplishments of the Cochabamba health unit were as follows:

Activities and norms	Targets (1966)	Percent accomplished
BCG vaccination (children 0-5 years)	9,610	40.6
Dental visits	16,000	46.3
DPT vaccinations (children 0-4 years)	13,130	33.9
Health inspections	5,798	178.2
Home visits by nurses	1,465	378.2
Hospital discharges	7,815	77.4
Medical visits	81,629	38.9
Smallpox vaccinations	582,031	64.4
Yellow fever vaccinations	24,495	23.2

Similar work was done in the Tarija health unit with comparable results.

Training activities under the project included the following courses: 1 in biostatistics (3 weeks) for 40 employees of the Public Health Ministry; 1 health inspector course (9 months) for 12 students; several in smallpox vaccination techniques (3 days) for 52 persons; 1 in the rudiments of public health (5 days) for 17 provincial physicians and several (4 weeks) for 128 rural teachers; and 1 in accounting and administration (1 week) for 18 administrative officers of health units and hospitals. Inservice training was also given: 10 days for 12 health inspectors, and 1 month for 45 nursing auxiliaries.

PAHO/RB, WHO/RB

AID, UNICEF

VIII. PROJECT ACTIVITIES

BOLIVIA-3101 (-11), National Plan for Rural Development

Objective: To promote the economic and social development and the health of the indigenous populations of the Andean Highlands so as to facilitate their integration into the national community.

Probable duration: 1953-1967.

Assistance provided: 1 medical adviser; and one 10-month fellowship to study public health administration (occupational hygiene), in Chile.

Work done: The community development plan for the 3-year period 1967-1969 was completed and submitted to higher authority.

Project activities were extended to 19 operating areas in the Departments of Cochabamba, La Paz, Oruro, Potosi, Santa Cruz, and Tarija. Two health center-hospitals were built and began operating in Jica and Motabi, and 5 medical posts and 7 health posts were set up and put into operation in as many communities. Assessment of the integrated program of applied nutrition was completed in the operating areas of Otavi, Pillapi and Playa Verde.

Project goals and accomplishments during the year were as follows:

<i>Activities and norms</i>	<i>Targets (1966)</i>	<i>Percent accomplished</i>
BCG vaccinations (children 0-15 years)	12,489	47.1
Dental visits	32,000	35.6
DPT vaccinations (children 0-4 years)	16,927	40.3
Health inspections	7,862	433.7
Home visits by nurses	3,564	229.6
Hospital discharges	12,462	70.1
Medical visits	115,450	41.6
Smallpox vaccinations	620,237	63.4
Yellow fever vaccinations	24,495	23.2

The First National Meeting on Community Development took place from 16 to 21 May, and the Third Inter-American Regional Meeting of the Bolivarian Countries (Bolivia, Colombia, Ecuador, Peru, and Venezuela) on Community Development was held from 22 to 28 May.

PAHO/RB, WHO/UN-TA

FAO, ILO, UN,
UNESCO, UNICEF

BOLIVIA-3102 (-16), Fellowships for Health Services

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
2	Clinical and social pediatrics	Chile	3
1	Nursing education teaching	Colombia	12

WHO/RB

BOLIVIA-3103, Training for Rural Development

Objective: To train auxiliary health personnel in activities designed to promote the improvement of living conditions at the individual, family, and community levels in rural areas.

Probable duration: 1965-1967.

Assistance provided: Advisory services by personnel from other projects in the country.

Work done: Training activities in this project included the following courses: 1 for nursing auxiliaries (10 months), 28 students; 1 for social service auxiliaries (10 months), 28 students; 3 for community development workers (an average of 5 months), 272 students; 2 orientation courses for directors, supervisors and program technical personnel (2 months), 118 participants; and 1 on elementary public health (1 week), attended by 73 public school teachers.

UNICEF

BOLIVIA-4201 (-17.1), Applied Nutrition

Objective: To develop in a selected area of the country an integrated applied nutrition program including training of professional and auxiliary personnel, laboratory studies, and research on the extent of protein-calorie malnutrition in preschool children.

Probable duration: 1964-1968.

Assistance provided: Advisory services by the medical nutritionist assigned to project AMRO-4204.

Work done: A national commission composed of representatives of the Ministries of Agriculture, Education, and Health was established to evaluate the applied nutrition program continually.

Anthropometric measurements were taken in Pillapi and Viacha and 573 blood samples and 498 urine samples were taken in the suburbs of La Paz—these data will serve as a baseline for future evaluation.

Analyses for a food composition table were under way.

Foundation for International Child Health, Inc.,
FAO, UNICEF

BOLIVIA-4202 (-17), Nutrition

Objective: To establish a pilot nutrition service for the purpose of determining standards, structures, activities, and evaluation criteria for nationwide application.

Probable duration: 1965-1967.

Assistance provided: Advisory services by the medical nutritionist assigned to AMRO-2404.

Work done: Although the project suffered delays due to the fact that the Department of Nutrition did not have a chief during a good part of the year, by December plans for establishing the first nutrition rehabilitation center were well under way. A population census and dietary and clinical surveys were carried out in El Alto and El Tejar.

Williams-Waterman Fund

BOLIVIA-6400, Sanitary Engineering Education

Objective: To increase the number and improve the quality of sanitary engineers in the country.

Probable duration: 1964-1967.

Assistance provided: 1 short-term consultant and advisory services by the professional personnel of Headquarters and

of the Office and other projects of countries of Zone IV; and grants.

Work done: Two intensive short courses were held at the School of Engineering of the University of San Andrés: on the design of water supply systems for small communities, from 23 May to 5 June, for 27 students; and on ground water, from 26 September to 15 October, for 23 students.

A preliminary study was carried out on laboratory facilities for the teaching of sanitary engineering.

PAHO/RB

BRAZIL-0100, Epidemiology

One ½-month fellowship was granted to study epidemiology in Czechoslovakia.

PAHO/RB

BRAZIL-0200 (-24), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1958-1976, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 chief malaria adviser, 3 medical officers, 2 sanitary engineers, 3 administrative methods advisers, 1 assistant engineer, 3 sanitation inspectors, advisory services by the sanitary engineer of the Zone V Office and by personnel of project AMRO-0200; drugs; a limited amount of equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
3	Malaria	Bolivia, Peru	¾
1	Ditto	Bolivia	½

Work done: From January to September, 3,116,016 house-sprays were performed (86.5% of the total planned for this period), including sectors under total and partial coverage; 1,319,038 of the house-sprays were in the 9 sectors under total coverage.

Of 1,246,637 blood smears taken throughout the country (excluding the State of São Paulo) and examined from January to September, 77,767 (6.2%) were positive for malaria: 228 were from consolidation-phase areas and 7 from maintenance-phase areas. However, in the 9 sectors under total coverage, 380,459 blood samples were examined during the first semester and only 3,159 (0.8%) were positive.

Geographic reconnaissance work was continued and attack measures were extended to new areas. Some additional areas were advanced to consolidation phase. Personnel of AMRO-0200 collaborated with the general health services on the development of better coordination between the latter and malaria eradication campaigns and stimulated the participation of the health services in eradication activities, particularly those concerned with surveillance.

An outbreak of malaria occurred in the Marajó Archipelago, State of Pará, in an area still in preparatory phase; and sharp increases in the incidence of *Plasmo-*

dium falciparum occurred in some localities in Mato Grosso and were slated for investigation, in 1967, as to the susceptibility of the strain to chloroquine.

Studies of *P. falciparum* resistant to, or tolerant of, chloroquine were carried out in the State of Espírito Santo, under orientation provided by personnel of AMRO-0200. The studies include both the determination of resistance and the study of response to treatment with pyrimethamine and sulforhodimethoxine. The latter treatment was giving excellent results, and the investigation will be continued. Additional areas were scheduled for field work during 1967 to determine whether chloroquine-resistant strains of *P. falciparum* are present or not.

The malaria eradication loan obtained by the Government from the U. S. Agency for International Development to cover the costs of imported commodities for the malaria service was renegotiated and extended for additional years, as all the funds had not been expended during the initial loan period.

PAHO/SMF, WHO/RB

AID

BRAZIL-0201 (-41), Malaria Eradication (São Paulo)

Objective: To eradicate malaria.

Probable duration: 1958-1976, year in which the consolidation phase is expected to be completed.

Assistance provided: Advisory services by personnel of projects Brazil-0200 and AMRO-0200; drugs; and a small amount of equipment and supplies.

Work done: From January to November, 53,176 house-sprays were performed. During the year, 177,367 blood smears were examined; of the 1,740 (1.0%) positive, 742 were collected during the first three quarters of the year, from areas in the consolidation phase. This was a slight increase in general positivity for the state and was the result of 3 outbreaks that occurred during the year, initiated by cases imported from other states of Brazil. This program is under continuing pressure from imported cases, both on its borders (which are still in attack phase) and in the interior. Because of the high number of imported cases this project will have to be continued until the rest of the country completes the program.

Personnel of project AMRO-0200 provided consultant services concerning the improvement of laboratory activities.

PAHO/SMF

AID

BRAZIL-0202 (AMRO-137), Training Center for Malaria Eradication (São Paulo)

Objective: To train professional and auxiliary personnel for the malaria eradication programs of Brazil and other Latin American countries.

Probable duration: 1958-1968.

Assistance provided: Advisory services by the staff of project Brazil-0200.

VIII. PROJECT ACTIVITIES

Work done: The Training Section was still in process of organization, but 43 senior sanitation inspectors, 24 senior administrative clerks, 13 entomology assistants, 62 microscopists, and 8 microscopists' supervisors were trained during the year.

BRAZIL-0300 (-38), Smallpox Eradication

Objective: To organize laboratories for the production of freeze-dried vaccine to meet the needs of the nationwide smallpox eradication campaign.

Probable duration: 1956-1967.

Assistance provided: 1 short-term consultant and advisory services by some of the personnel of project AMRO-0300; and equipment and supplies, including 27 vehicles to transport campaign personnel (21 pick-up trucks, 5 jeeps, and 1 station wagon) and 80 foot-pump-operated jet injectors.

Work done: Law No. 5,026, establishing general rules for the conduct of public health campaigns, was enacted in Brazil on 14 June 1966. This law provided for the launching of the National Smallpox Eradication Campaign, for which a superintendent was appointed.

A plan of operations was completed for the smallpox eradication campaign, which at first will cover the state of São Paulo and 7 states in the Northeast: Alagoas, Bahia, Ceará, Paraíba, Pernambuco, Sergipe, and Rio Grande do Norte. In the general context of the national campaign, the State of São Paulo took steps to accelerate smallpox eradication within its territory. The plan of operations was accordingly prepared with the assistance of the consultant and the state purchased, with its own funds and through the PASB, 50 foot-pump-operated jet injectors.

The laboratories at Recife and Pôrto Alegre and the Oswaldo Cruz Institute of Rio de Janeiro, to all of which PASB contributed equipment and working material for the production of dried smallpox vaccine, were active in 1966. The Butantan Institute also produced freeze-dried vaccine. A total of 9,386,200 doses of freeze-dried vaccine and 180,380 doses of glycerinated vaccine were produced up to 24 November. During the year, the Government furnished increasing quantities of dried smallpox vaccine free of charge to several American countries that required it. WHO (Geneva) provided the services of 1 expert in the preparation of freeze-dried vaccine to the Oswaldo Cruz Institute to discover and correct some defects in the vaccine production process.

Up to 30 October, 2,073,232 smallpox vaccinations were performed in the country. A total of 3,039 cases were reported.

PAHO/RB

AID

BRAZIL-0400, Tuberculosis Control

Objective: To establish, within the technical and socio-economic limitations of the community, a verification area in order to evaluate the applicability of methods and techniques used in the control of tuberculosis.

Probable duration: 1966-1970.

Assistance provided: 1 short-term consultant and advisory services by personnel assigned to project AMRO-0400; and a small amount of supplies.

Work done: A study was made of the problem posed by the prevalence of tuberculosis and of the selection of an area in the State of Rio de Janeiro for the establishment of the pilot program, or verification area, which will function as part of the general health services of the State and at the same time serve as point of reference in expanding the program.

WHO/RB

BRAZIL-0500 (-48), Leprosy Control

Objective: To intensify and expand the leprosy control program by applying modern methods and techniques; to gradually incorporate leprosy control activities into the general health services; and to train the professional and auxiliary personnel needed for the program.

Probable duration: 1962-1967.

Assistance provided: Advisory services by personnel of the Zone V Office.

Work done: As of 31 December 1965 there were 103,517 cases of leprosy registered, of which only 18,307 were receiving treatment in hospitals and 60,650 in ambulatory form. On that date there were 266,090 contacts registered, but only 128,617 were under surveillance.

Between January and December 1965, 5,870 new leprosy cases were detected, 5,462 of them were persons over 15 years of age. Clinically, the cases were distributed as follows: lepromatous, 2,971; tuberculoid, 1,389; indeterminate, 1,449; unclassified, 61. No information was received regarding physical disability, or with regard to 1966.

UNICEF

BRAZIL-0701 (-42), Rabies Control

Objective: To develop the national and state health services needed for producing vaccines and carrying out rabies control programs.

Probable duration: 1959-1969.

Assistance provided: 2 short-term consultants and advisory services by Headquarters and Pan American Zoonoses Center personnel; laboratory equipment and supplies; and one 4-month fellowship to study zoonoses, in Argentina.

Work done: A survey on the various aspects of the rabies problem in the states and territories of the country was completed. The report was transmitted to the health authorities and the Federal Rabies Control Commission began utilizing this information in planning and developing the control programs initiated in several states. PASB also collaborated with the health authorities of the States of Guanabara and São Paulo in the organization of their rabies control and prophylaxis activities.

The Bureau provided laboratory equipment and supplies to the Diagnosis and Rabies Vaccine Production Section of the Oswaldo Cruz Institute of Rio de Janeiro.

The Pan American Zoonoses Center provided advisory services in the production and control of rabies vaccines and supplied strains of virus for production and control purposes, as well as standard vaccine, to several institutes and laboratories of the country.

WHO/RB

BRAZIL-0900 (-53), Schistosomiasis

Objective: To plan and carry out a pilot program on schistosomiasis control as a basis for a nationwide program; and to expand research activities in the field of schistosomiasis.

Probable duration: 1951-1956; 1965-1970.

Assistance provided: 2 short-term consultants.

Work done: A number of discussions were held with the pertinent authorities concerning the planning of control work as part of a national demonstration control program.

A review was made of the techniques for collecting data on prevalence, the study of the clinical profile, and methods for the analysis of data.

PAHO/RB

BRAZIL-0901, Plague

Objective: To plan and carry out a research program that may serve as a basis for a reorientation of the control of plague in the country.

Probable duration: 1965-

Assistance provided: 3 short-term consultants and advisory services by Headquarters personnel; and equipment and supplies.

Work done: The inservice training of laboratory and field personnel was begun in Exu, an enzootic area in the interior of the State of Paramaribo, where the research laboratory is located. The first strain isolated was from a wild rodent caught in September in 1 of the 1,800 traps used every day. Later, from the same area, 7 more strains were isolated from rodents or their fleas. These strains were all of low virulence, denoting probably the beginning of a severe epizootic in that area. Regular observations of the infected zone could yield valuable information on the pattern of the spread, maintenance of the infection, and its transmission to man.

Forty-eight cases were reported during the year.

WHO/RB

BRAZIL-2100 (-25), Sanitary Engineering

Objective: To improve the organization of the environmental sanitation services of the Ministry of Health and other institutions.

Probable duration: 1952-

Assistance provided: 1 sanitary engineer, 1 short-term consultant, advisory services by 1 of the consultants assigned to project AMRO-2100, and secretarial services.

Work done: A preliminary report was prepared on the

water supply and sewerage works going forward at Pôrto Alegre with assistance from the Inter-American Development Bank. The Zone Office made a study of the recording and centralization of basic data on water supply and sewerage by the various federal agencies, and it was decided to set up a commission to revise the forms in use and to study the education and training of officials in relation to their duties.

The Superintendency of Urbanization and Sanitation (SURSAN) of the State of Guanabara continued its mosquito control program in Rio de Janeiro with the assistance of PASB.

PAHO/RB

BRAZIL-2101 (-68), Air and Water Pollution

Objective: To plan and carry out programs for the control of air pollution and surface water pollution in the State of São Paulo, especially in the Capital.

Probable duration: 1963-

Assistance provided: 1 sanitary engineer specialized in air pollution control and advisory services by professional personnel of Headquarters and the Zone V Office; and equipment and supplies.

Work done: Efforts to bring the Municipality of São Paulo into this program were immediately successful. In September a joint agreement was signed by the São Paulo State government, the State Ministry of Public Health and Social Welfare, 8 municipalities (including São Paulo) and the Intermunicipal Committee on Air and Water Pollution Control (CICPAA); under the terms of the agreement the activities of the latter agency will be redefined.

An investigation was conducted into industrial aspects of air and water pollution, hygiene, and garbage disposal; in this study 103 industrial plants employing 33,110 workers were inspected. Work also went forward on the regular air sampling program at 42 secondary and 2 main stations. An air sampling program was begun at 30 secondary stations in the city of São Paulo. One 5-day course on air pollution was conducted for 12 physicians of health centers in the State of São Paulo. In addition, a Seminar on Air Pollution was held at the School of Hygiene and Public Health of the University of São Paulo and an intensive 80-hour course on industrial ventilation was organized, to be held under CICPAA sponsorship in 1967.

See also Brazil-6401.

PAHO/RB, WHO/UN-TA

BRAZIL-2200 (-49), Water Supplies

Objective: To draw up plans for building water supply systems.

Probable duration: 1962-

Assistance provided: 1 short-term consultant and advisory services by Headquarters and Zone V Office professional personnel.

Work done: Toward a study of multipurpose development of river basins for the larger cities of Brazil, a

VIII. PROJECT ACTIVITIES

meeting of representatives from CICPAA, SURSAN, and SESP was held, and plans were begun to hold a national seminar on the subject.

Collaboration in the formulation of plans for the construction of water supply systems consisted of a report prepared by a committee of consultants recommending action to be taken, as well as in assistance in coordinating the activities related to the rural water supply program headed by SESP, which received a substantial loan from the Inter-American Development Bank.

In the area of teaching in sanitary engineering, a detailed curriculum and plan of activities, including research, was prepared and being coordinated with the National School of Public Health in Guanabara.

PAHO/CWSF

AID, IDB

BRAZIL-3100 (-66) Planning

Objective: To formulate health plans at Federal and State Government levels; and to train planners.

Probable duration: 1965-

Assistance provided: 1 planning officer, 2 short-term consultants, and 1 secretary; equipment and supplies; and one 3½-month fellowship for studies on public health planning, in Chile.

Work done: Significant progress in the organization of health planning was made at both Federal and State Government levels. The Ministry of Health established, with some financial assistance made available through the United States Agency for International Development, a health planning office and the Ministry of Health of the State of São Paulo followed up activities on planning, including the reorganization of the administrative structure of its health services (as recommended by the short-term consultant provided in 1964 by the Organization).

Four faculty members from the Schools of Public Health at Rio de Janeiro and São Paulo attended the international course in planning provided at the Latin American Institute for Economic and Social Planning, at Santiago, Chile, as a first step for the incorporation of planning courses within the above-mentioned Schools' teaching programs.

In the Northeast, with technical assistance provided by the PASB, individual state health plans and a plan for the region were formulated and a course in health planning methodology applicable to the local situation was organized. The course was held at Recife from 28 March to 3 June and trained 28 health workers.

The health section of the Office for Research in Applied Economics published a preliminary diagnosis of the health situation. A program of work was drawn up for the preparation of a 10-year health plan.

PAHO/RB

BRAZIL-3101 (-3), Health Services in the Northeast

Objective: To stimulate the development of general health services in selected areas of 9 states of Northeast Brazil.

Probable duration: 1958-1970.

Assistance provided: 2 medical advisers, 2 sanitary engineers, 1 nurse and 1 statistician; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Health education	Chile	12
1	Hospital administration	Chile, Colombia, Puerto Rico, Venezuela	2
2	Medical statistics and case records	Venezuela	10½
1	Public health administration	Chile	10
3	Public health planning	Ditto	3½

Work done: Efforts were made to draft a plan of operations as called for in the recently concluded Agreement between the Government of Brazil, UNICEF, and PAHO/WHO. The Superintendency of Development of the Northeast (SUDENE) and PAHO/WHO signed an agreement for a study of health programs in the region. Contacts were initiated between the Special Public Health Service Foundation (SESP), which is the principal agency coordinating the environmental sanitation activities of such other agencies as SUDENE, the National Department of Drought Control, the National Department of Sanitation Works, the San Francisco Valley Company, the Division of Sanitation and Engineering, and the Division of Sanitation of the Pernambuco State Health Department.

Improvements were made in the organization of statistical records at the health center of the Institute of Preventive Medicine of Ceará State University. The statistical section of the Secretariat of Health in Belem, Pará State, and the Eneuzilhada Center in Recife were reorganized.

The reorganization of the Northeastern Water Sewerage Company was begun.

Training activities under this project included the following courses: 1 for statistical assistants (4 weeks) for 23 students; 1 in health planning (8 weeks) for 16 statistical assistants; and 2 in the design and construction of water supply systems and 1 in the utilization of ground waters for a total of 83 students.

PAHO/RB, WHO/RB

AID, UNICEF

BRAZIL-3103 (-39), Health Services (Mato Grosso)

Objective: To improve the public health services of the State of Mato Grosso by strengthening the central organization, regionalizing the services, providing adequate technical supervision, and training personnel.

Duration: 1959-1965.*

Assistance provided: During the life of this project, the Organization provided the services of 1 medical adviser, 1 sanitary engineer, and 1 public health nurse; and in 1960 a 10-month fellowship was awarded to study public health administration, in Chile, and in 1961 one of 11 months to study public health nursing, in Colombia.

Work done: By the end of 1963 the objectives of the Integrated Health Plan in the Dourados district were fulfilled to a considerable extent under this project. For example, 92,099 persons were immunized against various communi-

* This project was concluded in 1965, but was not reported that year because part of the information was missing.

cable diseases between 1960 and 1963. At the end of 1963 the international staff was transferred to Cuiabá, the state capital, and plans for expanding the services to cover the entire state were being studied.

The year 1964 was largely devoted to the setting of quantitative targets and to evaluation of the program. The Health Foundation of Mato Grosso was established and its rules and regulations, and the conditions for employment in it were prepared. The statistical service was improved and new death certificates were prepared in accordance with international recommendations. Activities during the first 9 months of the year were as follows: 6.7% of the 34,020 expectant mothers received prenatal care; nurses made 3,809 prenatal house visits; 17.3% of 32,250 infants were under control, but only 4.1% of the 136,000 preschool-age children were examined by the health services; smallpox vaccinations were administered to 204,609 persons, or 35.7% of the total population of 574,412.

Between 1964 and 1965, a total of 9,106 latrines (dry pit or water-flushed) and 158 cesspools were built, and 9,596 water connections were made.

The Sanitation Service of the Mato Grosso Foundation was established in 1965 and several forms with appropriate instructions were prepared and put into use to record environmental sanitation activities. A health survey was conducted in 23 localities, and another survey was made to determine the available nursing resources. At the end of the year, a new water supply system was being built in Campo Grande, and a study on a water supply system for Cuiabá was nearing completion.

While the project functioned, the following were trained in local courses: 12 social workers; 45 health visitors; 36 health auxiliaries; 4 clinical aides; and 11 laboratory aides. In addition, 100 school teachers were instructed in the rudiments of nutrition.

UNICEF

BRAZIL-3105 (-200), Fellowships for Health Services

Awards	Field of study	Place of study	Months
2	Administrative procedures for lay public health administrators	Chile	4
1	Clinical and social pediatrics	Ditto	3
1	Cytology	United States of America	9
1	Epidemiology (plague control)	Iran, United States of America	2
2	Laboratory services (venereal diseases)	Argentina	½
1	Organization of public health teaching	Puerto Rico	12
1	Pharmacy teaching (biochemistry)	United States of America	5½
1	Public health administration	Chile, Mexico, Peru	3
1	Zoonosis (brucellosis and hydatidosis)	Argentina	2

PAHO/RB, WHO/RB

BRAZIL-3200 (-78), Nursing

Objective: To develop the basic aspects of research, planning of activities, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1953-

Assistance provided: 1 nurse-adviser, consultant services by the nurse-midwife assigned to project AMRO-4109, and 2 secretaries; and a small amount of equipment and supplies.

Work done: A National Commission of Nursing Education, composed of 5 nurses, was formed to study problems related to nursing education in general and, specifically, to attempt to determine why the enrollment in the schools of nursing and in the nursing-auxiliary programs continues to be low, the number of graduates being insufficient to meet the needs of the health services. In the State of São Paulo, a plan was prepared for the creation of a nursing section in the Health Department. Three national nurses attended a planning course held in Recife, Pernambuco.

The Alfredo Pinto and Ana Neri Schools of Nursing in Rio de Janeiro, as well as several health services intermittently requested and received advice from the PAHO/WHO advisers mentioned above.

A 3-week seminar on nursing-services administration was held under the auspices of the School of Nursing, University of Bahia, for 40 nurses. Preliminary plans were made for a nursing seminar to review the content of the public health nursing curriculum.

PAHO/RB

BRAZIL-3301 (-8), National Virus Laboratory Services

Objective: To expand laboratory facilities for the diagnosis of virus diseases, development of research programs, and production of vaccine at the Oswaldo Cruz Institute.

Probable duration: 1959-1967.

Assistance provided: 1 consultant in virology and advisory services by Headquarters and Zone V Office staff; laboratory equipment and supplies; and three ¼-month fellowships for studies of laboratory services (smallpox), in Brazil.

Work done: During the poliomyelitis outbreak in Fortaleza, Ceará, the Oswaldo Cruz Institute assisted with the etiological study of paralytic cases analyzing material in 66 cases; 26 type 1 poliomyelitis agents were isolated. It also analyzed some of the specimens obtained during an outbreak in the State of Guanabara. Furthermore, at the request of the Ministry of Health, the Institute examined specimens from 3 commercial batches of poliomyelitis vaccine.

The Oswaldo Cruz Institute, the Evandro Chagas Institute (of the Special Public Health Service Foundation) and PAHO/WHO agreed to carry out field tests for evaluation of the poliomyelitis vaccine in tropical areas.

The Health Service of the State of Acre administered measles vaccinations on a small scale.

VIII. PROJECT ACTIVITIES

The director of the Guanabara State Virus Laboratory received 2 months' training in poliomyelitis vaccination in the laboratory of the Institute. A course in virology was conducted for 15 laboratory technicians.

PAHO/RB, WHO/UN-TA

BRAZIL-3302 (-51), Yellow Fever Laboratory

Objective: To support the Hemisphere-wide campaign against yellow fever by providing laboratory diagnostic services and supplying yellow fever vaccine.

Probable duration: 1950-

Assistance provided: An annual grant; and equipment and supplies.

Work done: 10,585,200 doses of yellow fever vaccine were produced and 981,000 were distributed to Argentina, Bolivia, Paraguay, Senegal, Uruguay, and Venezuela.

PAHO/RB

BRAZIL-3500 (-36), Health Statistics

Objective: To improve the vital and health statistics services, especially those related to the reporting of communicable diseases; and to train personnel in vital and health statistics and in medical records and hospital statistics.

Probable duration: 1963-

Assistance provided: 1 statistical adviser and consultant services by the statistician assigned to project Brazil-3101; funds for contractual services; and equipment and supplies.

Work done: The Department of Hospital Administration of the School of Hygiene and Public Health of the University of São Paulo planned regular courses to prepare personnel for hospital medical records and statistics departments. The first course will emphasize the preparation of instructors for courses to be developed in other areas of Brazil.

The possibilities of, and interest in, establishing a center for preparing professors of medical statistics for schools of medicine was studied. It was found that statistics formed part of the curriculum of 10 medical schools, but 30 had no formal teaching in this discipline.

A study was initiated, at the request of the Minister of Health of the State of São Paulo, of the organization of a system of records and reports on health information for planning, administration, and evaluation of programs. The need for statistical information in the various stages of health planning was discussed in the Second Course on Planning held in Recife, Pernambuco, by the Superintendency of Development of the Northeast (SUDENE).

Classificação Internacional de Doenças—Adaptação para Índice de Diagnóstico de Hospitais e Classificação de Operações, translated into Portuguese in the Department of Statistics of the School of Hygiene and Public Health of the University of São Paulo, was published in early 1966 (PAHO Scientific Publication 126). Volume 2, *Classificação Internacional de Doenças*, was translated during the year and published in December.

Statistical auxiliaries were trained in 1 (4 weeks) course conducted in Salvador, Bahia, for 23 students from the health services; 1 (7 weeks) course offered by the Ministry of Health of Pernambuco State, to train statistical personnel for the 9 health regions of the state; and 1 course conducted in Recife by the Special Public Health Service Foundation (SESP) for personnel of that agency.

WHO/RB

BRAZIL-4200 (-7), Nutrition

Objective: To develop a program to improve the nutritional status of the population of the nation—through maximum utilization of locally available foods, education in good dietary habits, and the organization of nutrition courses for professional and auxiliary personnel engaged in health, education, and agriculture; and to develop an applied nutrition program in the State of Paraíba.

Probable duration: 1960-1968.

Assistance provided: 1 medical nutritionist; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Organization of medical education (nutrition)	Guatemala	2½
1	Public health teaching (nutrition)	United States of America	12

Work done: A coordination committee and a full-time coordinator were appointed in the State of Paraíba. This committee met several times and set up the following targets for the year. To promote production and consumption of protective foods at the local level—through the establishing of vegetable gardens and poultry farms, raising of small animals, etc.—and utilize the foods thus produced for the feeding of vulnerable groups, especially women and children. This program is supported by nutrition education measures provided through coordinated efforts of the state's departments of health, education, and agriculture.

FAO secured financial provision for the continuation through 1968 of its experts in nutrition education and agricultural extension, and UNICEF delivered garden and kitchen equipment, seeds, and a temporary vehicle to get the work started.

Preliminary work to establish a demonstration school for the project was completed.

Four courses were planned and 2 were conducted in each of which 10 teachers and supervisors, who would be associated with the activities of the project, were trained.

PAHO/OF, WHO/RB FAO, National Academy of Science, UNICEF

BRAZIL-4201 (-61), Nutrition Courses

Objective: To train physicians in nutrition through short refresher courses at selected Brazilian universities.

Probable duration: 1963-1967.

Assistance provided: 1 short-term consultant; a grant to the universities involved (awarded through the National

Food Commission); and advisory services by the medical nutritionist assigned to Brazil-4200.

Work done: 3 courses in nutrition were conducted at medical schools: In Belém, at the University of Pará, from 19 September to 20 October, for 20 physicians; in Belo Horizonte, at the University of Minas Gerais, from 3 to 28 October, for 16 physicians; and in Pôrto Alegre, at the University of Rio Grande do Sul, from 11 October to 5 November, for 20 physicians.

PAHO/RB, WHO/RB

BRAZIL-4202, Nutrition Courses (São Paulo)

Objective: To provide at the School of Hygiene and Public Health of the University of São Paulo advanced nutrition training for doctors working in public health services.

Probable duration: 1966-1968.

Assistance provided: Advisory services by the medical nutritionist assigned to project Brazil-4200.

Work done: 15 physicians from health services of 8 states and 23 other persons (physicians, dentists, veterinarians, biochemists, nutritionists, health educators, etc., who attended at their own expense) received training in an 8-week course, offered by the School of Hygiene and Public Health, in which emphasis was put on planning techniques and implementing of nutrition programs at the community level. The curriculum, prepared jointly by members of the faculty and PASB consultants, consisted of 195 hours of instruction and 30 of practical work. Upon return to their respective states, some of the participants in the course began initiating nutrition activities.

BRAZIL-4203 (-76), Institute of Nutrition (Recife)

Objective: To support and strengthen the research and training programs of the Institute of Nutrition of the Federal University of Pernambuco with a view to meeting the local needs and thus promote nutrition activities in the health services of Northeast Brazil.

Probable duration: 1964-1967.

Assistance provided: A grant to the Federal University of Pernambuco and advisory services by staff of other projects in the country.

Work done: Investigations undertaken by the Institute on a number of problems of applied value were being continued. These included mainly efforts to evolve suitable protein mixtures based on locally grown foods. One of the promising mixtures—prepared out of macaçar (a local bean), cotton seed, and maize—was being tested for acceptability. Studies on the extent of utilization of vitamin A from fortified skim milk, undertaken at the field unit at Ribeirão, were completed and the results were being analyzed. The field unit also carried out a survey of the food and nutrition problems of Zona da Mata.

The Institute began preparing food composition tables of certain locally grown foods, was collaborating with other departments and institutes also engaged in investigating the nutritional problems of pregnant women, made

studies of cases of schistosomiasis, etc., and prepared balanced menus for Army personnel.

In the field of training, the Institute opened its inservice training facilities to personnel from Pernambuco and other states in the Northeast. The 3-year course for nonmedical nutritionists, to which about 20 candidates are admitted each year, was continued separately from the regular participation of the Institute's staff in the nutrition teaching of undergraduate medical students.

PAHO/RB

BRAZIL-4500, High Background Radiation Areas

Objective: To carry out studies of the possible biological effects on human population of abnormally high background radiation due to naturally high levels of radioactive elements in the ground.

Probable duration: 1963-1973.

Assistance provided: 1 short-term consultant who visited Brazil twice to advise on and orient and coordinate the activities at the Physics Department of the Pontifical Catholic University of Rio de Janeiro and the Biophysics Department of the University of Brasil (Rio de Janeiro, Guanabara); and one 2-month fellowship to study chemistry (radiochemistry), in the United States of America. (Two fellowships were provided in 1964 and 2 in 1965 for staff members of both cooperating Departments, to prepare individuals in the fields of radiation physics, radiochemistry, and cytogenetics).

Work done: In 1963 extensive physical measurements of radiation levels were begun in the monazite sand areas of the town of Guarapará (Espírito Santo) on the Atlantic Coast and in Meaípe (Minas Gerais)—both located in regions of volcanic intrusives. The measurements have indicated that the external levels of radiation are from 3 to 100 times higher than the normal background radiation. The human biological intake of the kind of heavy radionuclide present in the soil of Guarapará and Meaípe is minimal, probably because of the limited quantities of locally grown food. However, in the Araxá-Tapira region, in Minas Gerais, a greater amount of produce is grown for local consumption and the existence of radioactive minerals in the farmland soil makes it possible to study the effects of elevated levels of radium in food.

The finding of somatic chromosomal aberrations in residents of Guarapará is significantly greater than the number found among controls in Anchieta (Espírito Santo) where radiation levels are normal and aberrations are no more frequent than in Rio de Janeiro itself. The type of chromosomal abnormalities, translocations, and deletions appear to be characteristics of irradiation from internal emitters rather than from external sources. Breath samples collected from Guarapará residents have shown elevated thorium activity as compared to the controls, indicating that Ra-228 (a disintegration product of thorium) had somehow been assimilated by the residents.

VIII. PROJECT ACTIVITIES

As part of the environmental studies which are being carried out in Minas Gerais the National Museum began cataloging the flora and fauna in the Morro do Ferro area of Poços de Caldas. A special study in this area was also in progress to determine the radiation dose being received by burrowing rodents.

In previous years, information on this area of work was reported in Chapter V, Research.

PAHO/RB

BRAZIL-4800, Medical Care Services

Objective: To study medical care problems and the possibility of integrating those services with the general health programs.

Probable duration: 1966-1968.

Assistance provided: 1 short-term consultant and advisory services by personnel of projects AMRO-4800 and -4806; and equipment.

Work done: A study was made of working conditions at the professor Edgard Santos Clinical Hospital at the School of Medicine of Bahia University, in Salvador, and of its organization, the efficiency of its services, shortcomings and factors affecting its operation. The report presented recommendations and suggestions on possible ways of overcoming existing difficulties under a plan that would encompass all the problems.

The Clinical Hospital of the School of Medicine of Minas Gerais University, in Belo Horizonte, requested and obtained from the PASB advisory services in the restructuring of its organization and in the improvement of the architectural plans of a project for the construction of a series of buildings. Several recommendations were made in both areas, and the competent authorities immediately initiated their implementation.

PAHO/RB

BRAZIL-4801 (-31), Rehabilitation

Objective: To reorganize the Department of Occupational Therapy of the Institute of Rehabilitation of the University of São Paulo; and to organize training courses and rehabilitation centers throughout the country.

Probable duration: 1958-1961; 1963-

Assistance provided: 1 occupational therapist.

Work done: 11 students finished the 2-year course offered by the Department of Occupational Therapy of the Institute of Rehabilitation.

Two 6-week courses of an experimental type were planned and held to provide orientation in physical medicine and rehabilitation to social security physicians.

WHO/UN-TA

ILO, UN-TAO

BRAZIL-4802, Training in Orthopedic Brace-Making

Objective: To expand rehabilitation services for the handicapped by providing courses in orthotic techniques;

in the manufacture of low-cost high-quality prostheses and in their modification, fitting, and adjustment.

Probable duration: 1964-1967.

Assistance provided: Advisory services by the medical officer assigned to project AMRO-4807.

Work done: In São Paulo a 4-month course in orthotics was conducted from August to December in the workshops of the Association for the Assistance of Children with Physical Handicaps, for 12 students: 8 were from Brazil and 1 each from Argentina, Colombia, Ecuador, and Uruguay. This was the second of three such courses, with the third and final scheduled for 1967. The students were accepted for training only after they had been guaranteed employment by an approved institution subsequent to training. The training enables students to work as competent orthotists.

UNICEF

BRAZIL-6100 (-19), School of Public Health (Rio de Janeiro)

Objective: To introduce modern training methods and improve practice areas; to develop laboratory and library services; and to obtain full-time teaching staff for the National School of Public Health.

Probable duration: 1957-1967.

Assistance provided: Equipment and material for laboratories, subscriptions to technical publications, and reference books were provided for the library of the National School of Public Health.

PAHO/RB, WHO/RB

BRAZIL-6101 (-35), School of Public Health (São Paulo)

Objective: To strengthen the School of Hygiene and Public Health of the University of São Paulo, bearing in mind its use as an international center for the training of health workers.

Probable duration: 1958-1968.

Assistance provided: 1 grant; equipment and supplies; and one 2-month fellowship to study public health teaching (microbiology), in Argentina, Chile, and Peru.

Work done: The School continued its program planning in teaching, both for its regular course for candidates to a Master's Degree in Public Health and for the special courses provided by the school.

PAHO/RB, WHO/RB

BRAZIL-6200, Medical Education

Objective: To strengthen medical education in the country with emphasis on the teaching of preventive and social medicine.

Probable duration: 1965-1969.

Assistance provided: 1 medical educator, 1 secretary,

and 3 short-term consultants; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Course on medical library science	Colombia	5¼
1	Medical education pedagogy	Colombia, United States of America	1
1	Ditto (health statistics)	Venezuela	1½
1	Ditto (preventive medicine)	Colombia, United States of America	2

Work done: Discussions were held with the authorities of 10 selected medical schools on recent advances in medical education with special reference to the teaching of social medicine, and the pertinent recommendations were made.

Two PAHO representatives attended the IV Meeting of the Brazilian Association of Medical Schools, held in Salvador, Bahia, from 1 to 6 August. Advisory services were furnished to the 2 medical schools in Rio de Janeiro and Campinas to organize a department of preventive medicine.

Plans were made by the Government, with the assistance of PAHO/WHO, to conduct in 1967 a 2-week seminar in epidemiology. Preliminary steps were taken by the 5 medical schools in Rio de Janeiro and Belo Horizonte to organize a course in medical pedagogy.

PAHO/RB, WHO/RB

BRAZIL-6201 (-59), Teaching of Preventive Medicine (University of Ceará)

Objective: To improve teaching at the Institute of Preventive Medicine of the Medical School of the University of Ceará.

Duration: 1963-1966.

Assistance provided: During the development of the project the Organization provided 1 public health nurse (30 months) and 2 short-term consultants in statistics; a small amount of teaching materials; and 2 fellowships.

Work done: In 1963 the Institute of Preventive Medicine was reorganized. During 1964 the University's teaching programs in preventive medicine and public health were revised, and 14 nursing students, 26 nurse auxiliaries, and 33 social service workers were provided with training in preventive medicine. In 1965 the teaching of preventive medicine was added to the 1st and 3rd-year curricula of the University's School of Nursing. Thirty medical students were trained in statistics, and the PAHO fellow who went to Chile to study medical education and public health administration returned to Brazil. In 1966 the nurse who had been studying public health nursing in Puerto Rico finished her studies and returned to Brazil.

PAHO/RB

BRAZIL-6202 (-64), Pediatric Education (Recife)

Objective: To improve the teaching of pediatrics in the School of Medicine of the University of Recife; and to make education opportunities available to professional and auxiliary personnel and to the community at large.

Probable duration: 1963-1968.

Assistance provided: 1 medical officer and 1 short-term consultant; and a grant to the Pediatric Department of the School of Medicine.

Work done: The School prepared a plan to integrate the teaching of pediatrics and preventive medicine. Under this plan, the School will serve as a major pediatric training center for the country. The Department of Pediatrics trained 20 physicians, 10 nutritionists, 10 nurses, and 15 nursing auxiliaries.

PAHO/RB, PAHO/SFHP

UNICEF

BRAZIL-6203, Research Training

Objective: To develop a Regional Training Center for teachers and researchers in the field of microbiology, utilizing the resources of the Institute of Microbiology, at the University of Brazil, in Rio de Janeiro.

Probable duration: 1965-

Assistance provided: A grant to the Institute; and equipment and supplies.

Work done: 7 fellows were trained in the 1-year specialization course—1 each from Colombia, Ecuador, and Mexico, and 2 each from Peru and Venezuela. Six fellows received short-term specialized training—1 each from Chile, El Salvador, and Peru, and 3 from Paraguay.

PAHO/RB, PAHO/OF

RF

BRAZIL-6301 (-60), Nursing Education (Recife)

Objective: To develop in the School of Nursing of the University of Recife a center of postgraduate nursing education for use by the North and Northeast of Brazil.

Probable duration: 1963-1967.

Assistance provided: Equipment and supplies; and one 12-month fellowship to study nursing education teaching (public health nursing), in Puerto Rico.

Work done: A nurse adviser was scheduled for this project and was due to report to Recife in November, but her arrival date had to be postponed because of illness.

WHO/RB

BRAZIL-6302 (-63), Training of Nursing Auxiliaries

Objective: To improve the quality of the training of nursing auxiliaries; and to increase the quantity of trained nursing auxiliaries.

Probable duration: 1963-1967.

Assistance provided: 1 nurse; equipment and supplies; a grant; and three 1-month fellowships to study programmed instruction, in Mexico.

Work done: A survey of 14 schools of nursing was completed and changes were made to courses of study when necessary. A 4-month intensive course on the principles of teaching was conducted in Recife for 17 nurses who teach in the School of Nursing of the University of Recife, Pernambuco, and 1 course in public health nursing

VIII. PROJECT ACTIVITIES

was conducted in Goiás for 27 nurses. Efforts were under way to obtain fellowship grants for 85 students studying auxiliary nursing.

PAHO/RB

UNICEF

BRAZIL-6400 (-82), Institute of Sanitary Engineering

Objective: To combine the sanitary engineering laboratory facilities of the Institute of Sanitary Engineering of the Superintendency of Urbanization and Sanitation of the State of Guanabara with those of the School of Engineering of the University of Guanabara; and to develop the combined laboratory facilities as a center for education, research, and service for all the educational institutions in the Rio de Janeiro area.

Probable duration: 1964-1969.

Assistance provided: 1 project manager, 5 short-term consultants, and supporting services through Headquarters and Zone V Office personnel; laboratory equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Environmental sanitation (water analysis)	United States of America	8½
1	Laboratory services (microbiology)	Ditto	10
1	Sanitary engineering teaching	Ditto	2½
1	Water and sewage analysis	Ditto	4
1	Ditto	Ditto	6½
1	Water pollution control (radiation)	Ditto	7½

Work done: Quarters to accommodate the Institute's staff, which had been housed in 3 scattered locations, were completed and dedicated on 14 December. Equipment and supplies in the amount of \$50,000 were received and requisitions for an additional \$84,000 were prepared and forwarded. The library was stocked and organized, including audiovisual and other training aids.

A total of 94 persons attended the training courses presented by the Institute in the fields of water bacteriology, swimming pool operations, and industrial wastes. The basic courses in sanitary engineering continued to be offered for 4th-year students of civil engineering at Guanabara State University.

Programs were planned in the fields of chemistry, biology, bacteriology, industrial wastes, and air pollution.

WHO/UN-DP

BRAZIL-6401, Sanitary Engineering Education

Objective: To improve the technical training of engineers and other professional personnel working in sanitary engineering, particularly water supply, by offering appropriate short courses at the Universities of Bahia, Ceará, Paraíba, Paraná, Pôrto Alegre, Recife, and São Paulo; and to introduce research activities in sanitary engineering.

Probable duration: 1965-1971.

Assistance provided: 1 short-term consultant and advisory services by technical personnel of Headquarters, of the Zone V Office and of the Brazil-2101 project; and 1 grant.

Work done: The Government, represented by the Ministry of Public Health, and PAHO/WHO, signed an agreement on the conduct of activities under this project. The agreement will cover all universities that wish to participate in these activities, which they may do by applying to the Government and obtaining its approval.

An agreement was signed with the University of Ceará, located in Fortaleza, providing for training activities at the University.

Six intensive short courses and 2 seminars were held: design and construction of water supply systems, from 11 to 22 April (Polytechnic School of the University of Bahia), for 19 students; water quality, from 23 May to 4 June (School of Engineering of the University of Paraná), for 16 students; rate-structures and accounts, from 6 to 18 June (School of Engineering of Pernambuco, University of Recife), for 19 students; pumps and pumping stations in water supply systems, from 13 to 25 June (School of Hygiene and Public Health of the University of São Paulo), for 33 students; utilization of ground water, from 1 to 31 August (School of Engineering of the University of Ceará), for 25 students; and air pollution, from 28 November to 3 December (School of Hygiene and Public Health of the University of São Paulo), for 40 students. The 2 seminars dealt with: teaching of sanitary engineering in the northeast of Brazil, from 11 to 16 July (Polytechnic School of Campina Grande of the University of Paraíba) with 39 participants; and sanitation and the national housing program, from 22 August to 2 September (School of Hygiene and Public Health of the University of São Paulo), with 55 participants.

The Institute of Engineering of the Superintendency of Urbanization and Sanitation (SURSAN) of the State of Guanabara held 8 short courses and 2 seminars on various sanitary engineering topics. The total number of trainees was 228.

The School of Hygiene and Public Health of the University of São Paulo produced *Bombas e Estações Elevatorias para Abastecimento de Água* (pumps and water tanks for water supply) based on the course on this subject held at the School.

PAHO/RB, WHO/RB

BRAZIL-6402, Research into Water Supply

Objective: To introduce research techniques into the universities as part of academic courses on water supply.

Probable duration: 1966-1970.

Assistance provided: Advisory services by professional personnel of Zone V; and a grant.

Work done: The first research project, involving an operational plan of 6 months, was begun in October. This project represents a contribution to studies for the reorganization of methods of contracting, inspecting, and receiving works (deep wells intended for public supplies in the State of São Paulo); responsibility for this research project was assigned to the Chair of Water Supply and Sewage of the

Sanitation Department of the School of Hygiene and Public Health, University of São Paulo.

PAHO/CWSF

BRAZIL-6500 (-44), Veterinary Medicine Education

Objective: To improve the teaching of public health and related subjects in the schools of veterinary medicine of the country.

Probable duration: 1960-1968.

Assistance provided: 3 short-term consultants and advisory services by personnel of the Pan American Zoonoses Center; and teaching materials and technical publications.

Work done: Courses in public health and epidemiology were organized and held at the School of Veterinary Medicine of Belo Horizonte (Minas Gerais) and of São Paulo. In the Belo Horizonte school as well as in the Schools of Veterinary Medicine at Pôrto Alegre (Rio Grande do Sul) and Rio de Janeiro (Guanabara), the teaching program was reviewed and reorganized and a series of lectures was given on various aspects of the epidemiology of the zoonoses.

In collaboration with the Public Health Services of the State, the Department of Preventive Medicine of the School of Veterinary Medicine of São Paulo began an epidemiological study on cases of bites by animals suspected of rabies and the effect of preventive antirabies treatments.

In cooperation with the Pan American Zoonoses Center several schools were provided with reagents and biologicals.

PAHO/RB

BRAZIL-6600 (-43), Teaching of Preventive Dentistry

Objective: To develop the teaching program of preventive and social dentistry in the dental schools of the country.

Probable duration: 1963-

Assistance provided: Advisory services by personnel from Headquarters and the Zone Office and by the short-term consultant assigned to project AMRO-6600.

Work done: The Institute of Microbiology of the Federal University of Rio de Janeiro conducted 1 advanced course in oral microbiology which was attended by 2 professors of the subject from the principal dental schools in the country and 1 from El Salvador. The duration of the course was 114 hours spread over 30 days.

The National School of Dentistry of the University of Brazil, in Rio de Janeiro, began studies toward the establishment of a Department of Preventive and Social Dentistry in its curriculum.

BRAZIL-6601 (-37), Dental Education

Objective: To operate, at the School of Hygiene and Public Health of the University of São Paulo, an International Epidemiology Center for public health dentists and teachers of preventive and social dentistry in Latin American dental schools; to provide, for dentists attend-

ing the regular public health course at the School, training in specific fields of dentistry; and to build up a faculty with training in teaching and research in public health dentistry.

Probable duration: 1958-1969.

Assistance provided: Advisory services by Headquarters personnel; and travel expenses and per diem allowances for the Brazilian participants in the Third Latin American Seminar on the Teaching of Dentistry (AMRO-6607).

Work done: The program for the First International Course on Dental Epidemiology and Research Design was prepared by the University of São Paulo and the candidates for attendance were selected.

The Brazilian Association of Dental Education (ABENO) held a Meeting of Educators in Petrópolis, in the State of Rio de Janeiro, from 2 to 7 December, concurrently with the III Congress of the Latin American Association of Dental Schools (ALAFD) and a Course on Dental Education.

In the State of Rio Grande do Sul plans were made for the establishment of a coordinated dental program. The State Ministry of Health and the Schools of Dentistry of the Federal and Catholic Universities in Pôrto Alegre signed an agreement with PAHO/WHO for the establishment of an Institute of Dental Research. The Institute will also teach preventive and social dentistry at both schools.

PAHO/RB, PAHO/OF

KF

BRAZIL-6700, Biostatistics Education and Population Dynamics

Objective: To establish at the School of Hygiene and Public Health of the University of São Paulo a Center for teaching and research in the interrelationship of health and population dynamics and their bearing on the social and economic processes.

Probable duration: 1966-

Assistance provided: A grant for faculty and equipment and a grant for a research project; and advisory services by 2 short-term consultants respectively assigned to projects AMRO-6213 and -6709.

Work done: The faculty for the Center was chosen with a view to providing an interdisciplinary approach; consequently, 3 professors were sent to the United States of America to study demography: a pediatrician to the University of Michigan, an economist to Princeton University (both with fellowships, see AMRO-6213), and a mathematical statistician to the University of North Carolina (AMRO-6709). Short-term consultants visited the Center in São Paulo to advise on the curriculum and the first Course on Population and Health was planned and scheduled for 1967 (AMRO-6213).

A study of abortions was planned for the city of São Paulo. A sample consisting of 1,500 women of child-bearing age will be studied through household visits by professional social workers. Each woman will be interviewed at 3-month intervals to obtain a complete record of the pregnancies which occur within the study period, the

VIII. PROJECT ACTIVITIES

condition of the child at birth, perinatal mortality and its relation to prenatal care and delivery, number of previous pregnancies, duration of pregnancy, and socio-economic factors. The questionnaire for keeping the study record was designed and pretested, and the final questionnaire was then prepared. In addition, the population sample was drawn and interviewing was started.

WHO/RB

BRITISH HONDURAS-0200 (-1), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1971, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 sanitation inspector, for 1 month, and advisory services by personnel of projects AMRO-0200 and -0203; antimalaria drugs and other supplies.

Work done: The situation deteriorated during 1966 in several northern districts; and cases continued to be discovered, although in lesser numbers, in the southern area affected by the June 1965 outbreak caused by *Plasmodium falciparum* in Toledo. As a result, spraying operations were resumed in some areas of the country: 6,447 houses in 67 localities were sprayed with DDT, directly protecting a population of 30,889. Mass administration of drugs was also utilized in a few localities.

Of the 13,920 blood smears examined, 552 were positive—260 caused by *P. falciparum* and 292 by *P. vivax*. In Stann Creek, from January to October, 68 cases were discovered; and 23 cases occurred in 3 localities in Cayo and Belize, where no cases had been noted in recent years.

Personnel of AMRO-0200 provided advisory services on the improvement of laboratory services.

PAHO/SMF

UNICEF

BRITISH HONDURAS-2200 (-7), Water Supplies

Objective: To gather under a central authority the management of water supply and sewerage services; to expand the water supply services of Belize and Stann Creek; and to develop a program for the construction of rural waterworks.

Probable duration: 1964-1967.

Assistance provided: 1 short-term consultant and advisory services by the engineer assigned to project British Honduras-3100 and by professional personnel of project AMRO-2203.

Work done: The bill for the founding of a single, autonomous national water supply and sewerage authority, which will solve several technical and administrative problems handicapping the program, was approved by the Council of Ministers and was pending approval by the Assembly.

The water supply system of Belize was undergoing expansion and studies of this city's present sources of water supply were completed. The latter will serve as the basis of a geological survey to assess future sources available for the capital city. The system for Stann Creek was

completed, at a cost of BH\$250,000, including the treatment plan. Furnishing adequate water supplies to these 2 cities is important to the economic development of the country. The program to supply water to small communities continued drilling 3 wells per month.

PAHO/CWSF

BRITISH HONDURAS-3100 (-5), Health Services

Objective: To reorganize, expand, and improve the general health services, beginning with the development of an environmental sanitation plan.

Probable duration: 1962-1968.

Assistance provided: 1 sanitary engineer and advisory services by the nurse educator assigned to project AMRO-6301; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Environmental sanitation (development of ground water sources)	Panama	¾
1	Health statistics	Jamaica	3

Work done: The rural environmental program was extended to the third district, where a shop for the production of latrine floor and seat slabs was set up. A total of 693 floor slabs were turned out, of which 400 were installed. Two rural water supply systems were built and 11 wells were drilled.

Under the immunization program the following vaccinations were administered: 3,300 smallpox, 6,122 DPT, 1,115 tuberculosis, 11,298 diphtheria, 127 tetanus, and 162 poliomyelitis. A nation-wide rabies program was carried out and a rodent control campaign was begun.

Four courses in food-handling were given for restaurant owners and restaurant employees in 3 districts of the country.

WHO/RB

UNICEF

BRITISH HONDURAS-6300 (-9), Nursing Education

Objective: To study the country's nursing needs and resources in order to develop, at the Belize School of Nursing, a basic education program that will include teacher training, integration of preventive and curative medicine concepts, and social and community developments aspects.

Probable duration: 1964-1967.

Assistance provided: 1 nurse educator and advisory services by the nurses assigned to projects AMRO-3203 and -6301.

Work done: To ameliorate the most pressing need, the graduate-nurse program was replaced by a program to prepare practical nurses.

WHO/RB

BRITISH HONDURAS-6400, Sanitary Engineering Education

Objective: To improve the technical preparation of professional and auxiliary personnel engaged in environmental sanitation, devoting special attention to subjects related to water supply.

Probable duration: 1966-1968.

Assistance provided: 1 short-term consultant; and advisory services by professional personnel of Headquarters and of other projects of the country.

Work done: An agreement for the implementation of the project was signed between the Extramural Department of the University of the West Indies and PAHO. The program for the first intensive course was prepared and funds to finance it were obtained.

PAHO/CWSF**CANADA-3101 (-200), Fellowships for Health Services**

Awards	Field of study	Place of study	Months
1	Maternal and child health	United States of America	9
1	Nursing education	India, Malaysia, Singapore, Thailand	3
1	Public health teaching (medical care administration)	Belgium, Denmark, France, Netherlands, Norway, Sweden, Switzerland	2¼

WHO/RB**CHILE-0109, Vaccination against Measles**

Objective: To reduce measles morbidity by 70% among children from 8 months to 5 years of age, by means of a rural measles vaccination campaign coordinated with the current urban campaign and utilizing local resources to achieve optimum results.

Probable duration: 1966-1968.

Assistance provided: Advisory services by Headquarters and project AMRO-0106 personnel.

Work done: An epidemiological evaluation of the urban campaign indicated that in 1965 measles-caused mortality was lower than in any of the previous 5 years, and lower by 2,000 than in 1964 when 3,264 persons died of this disease. During the first half of 1966, 84,557 children between 9 months and 5 years of age were vaccinated, raising the total of children vaccinated in the country to 827,722.

A pilot study was begun in some outlying sections of Santiago for simultaneous immunization against measles and smallpox, applying the mixed vaccine with jet injectors. Reactions to the smallpox vaccine were satisfactory and immunization studies were made to determine the response to the measles vaccine.

UNICEF**CHILE-0400 (-10), Tuberculosis Control**

Objective: To organize in the commune of La Cisterna, in the Province of Santiago, a demonstration area to obtain epidemiological information, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1964-1968.

Assistance provided: Advisory services by staff of the Zone VI Office and by personnel assigned to project AMRO-0400.

Work done: A beginning was made in reorganizing the tuberculosis control program. The idea is to improve the system of dispensaries in the various health areas and to extend control activities which are now concentrated only in the large cities of the country (Santiago, Valparaíso, Concepción), under the direction of national advisers with specific area functions. Notification of new cases and of relapses was encouraged, as it was felt that the information previously available referred, almost exclusively, to mortality data.

Work was continued in the demonstration area of La Cisterna and the program focused on the detection of cases, their treatment, and protection of the susceptible population by means of BCG vaccination. A beginning was made in the updating of the central case file.

The First National Tuberculosis Microbiology Workshop (Jornadas) was celebrated with the participation of laboratory personnel from the various health areas. PASB cooperated in the organization and development of the Tuberculosis Microbiology Workshop, the purpose of which was to unify criteria relative to the organization of laboratories, equipment and work methods, as well as to the collection and transportation of samples and to supervisory methods.

UNICEF**CHILE-0600, Venereal Disease Control**

Objective: To implement a venereal disease control program in which modern techniques will be applied.

Probable duration: 1965-1970.

Assistance provided: Advisory services by Headquarters staff and the epidemiologist assigned to project AMRO-0106; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Venereal disease	Mexico, United States of America	2½
1	Ditto (serology)	United States of America	4

Work done: Under the auspices of the National Health Service, the Medical Association of Chile, and the Graduate School of the Medical School of the University of Chile, a 2-week series of lectures on venereal disease control was conducted. Additionally, a course for contact investigators was conducted in Santiago.

The national health authorities decided to use the VDRL test as a routine examination method for syph-

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ilis, with the addition of other tests as required for confirmation.

PAHO/RB

CHILE-2200 (-40), Water Supplies

Objective: To plan and carry out a national water supply program and in particular to design and build an expansion to the water supply system of the city of Santiago.

Probable duration: 1960-1967.

Assistance provided: Advisory services by the engineers assigned to projects Chile-3100 and AMRO-2106.

Work done: The National Rural Water Supply Service continued to follow a vigorous program while reorganizing for improvement in the quality and quantity of its work. The administration is being organized into separate offices to deal with personnel, purchasing, storage, etc., and has under consideration cost-analysis operations. A well-drilling section was established which lets contracts for 10 to 12 wells per month, to be constructed, developed, and tested to specifications established by the Office of Rural Sanitation. The Construction Section revised its methods and achieved a major improvement in the speed of completion of water supply systems, and the Projects Section was reorganizing in order to catch up on its work. The Operations and Maintenance Section was developing a new management program scheduled for initiation in February 1967.

The Service completed 42 water supply systems during the year and had 56 in progress—an average of better than 6 systems completed per month.

CHILE-3100 (-49), Health Services

Objective: To strengthen the health services in the southern part of the country in order to meet the needs of the 34% of Chile's total population living in this area devastated in 1960 by a violent earthquake; and to provide water-supply and sewerage services to the rural population of the area, numbering 960,000 inhabitants.

Probable duration: 1961-1967.

Assistance provided: 1 medical adviser (the PAHO/WHO Country Representative) 1 sanitary engineer, and 3 short-term consultants; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Epidemiology	Czechoslovakia, England, Italy, Norway, Sweden, Switzerland, Yugoslavia	3
1	Food control	Canada, United States of America	4
1	Health education	Mexico, Peru, Puerto Rico, Venezuela	4
1	Medical pedagogy (school hygiene)	England, France, Sweden, United States of America	5
1	Organization of medical teaching (hematology)	United States of America	3

Awards	Field of study	Place of study	Months
1	Public health administration	Costa Rica	1
2	Ditto	Costa Rica, Puerto Rico, Venezuela	4
1	Ditto	Canada, Peru, United States of America	3

Work done: The relevant activities under the 10-Year Health Plan (1966-1975) were begun; since they include the operations of the National Health Service they account for almost 80% of the health sector. Activities were grouped under the following 6 programs: medical care, maternal and child care, epidemiology, sanitation, dentistry, and administration, with specifications for each province. The planning Committees of the Public Health Ministry and the National Health Service were created and regional planning offices were organized. The environmental sanitation aspects of health programs were discussed by the local planning authorities and PASB staff. Simultaneous vaccination against measles and smallpox by jet injection was progressing satisfactorily.

Two courses in health planning were conducted for a total of 85 physicians, nurses, and medical students; one of the courses was held at the School of Public Health of the University of Chile at Santiago and the other at the University of Concepción.

PAHO/RB, WHO/RB, WHO/UN-TA UNICEF

CHILE-3101 (-25), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Laboratory services (smallpox)	Brazil	¼
1	Maternal and child health	United States of America	3½
1	Ditto	Colombia, Guatemala, Mexico, Puerto Rico, Venezuela	2½
1	Medical education teaching	England, France, Italy, Spain, Yugoslavia	5
1	Ditto (surgery)	United States of America	12
1	Ditto	Germany, United States of America	4
1	Organization of medical education (radiochemistry)	United States of America	12

WHO/RB

CHILE-3102 (-26), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Bacteriology (virology)	Canada	12
1	Medical education teaching (pediatrics)	Brazil, Colombia, Mexico, United States of America	2½

PAHO/RB, PAHO/SFHP

CHILE-3200 (-41), National Planning for Nursing

Objective: To improve the quality of the nursing care given in the health services; and to prepare adequately trained professional and auxiliary personnel for the needs of the country.

Probable duration: 1960-1969.

Assistance provided: 1 short-term consultant and advisory services by the nurse adviser assigned to project AMRO-3206.

Work done: 12 nurses and 7 midwives enrolled in the course for the preparation of instructors offered by the School of Public Health. The short-term consultant provided in 1965 to assist in the organization and development of the course returned in 1966 to evaluate progress made and make recommendations to improve the course. The report was submitted to the Government. A 6-week course in rehabilitation nursing was begun, in December, for 9 nurses. Three seminars were held for a total of 44 nurses and 9 midwives.

Matriculation in the 9 schools of nursing rose to a total of 1,173 students (1,083 in 1965). Of the 147 who graduated in 1966, 124 were employed.

Of the 800 nursing auxiliaries (704 women and 96 men) prepared through formal courses, 778 were absorbed into the services. There was a decrease in the number of nursing auxiliaries prepared in 1966 (864 in 1964 and 970 in 1965).

WHO/RB

UNICEF

CHILE-3301, Microbiology Center

Objective: To establish a Microbiology Center in the Institute of Bacteriology of the National Health Service.

Probable duration: 1966-1968.

Assistance provided: 3 short-term consultants and one 1¼-month fellowship to study tuberculosis (laboratory diagnosis), in Argentina.

Work done: Two consultants took part in the First National Tuberculosis Microbiology Workshop and the other assisted in the planning of blood banks.

WHO/RB

CHILE-3600, Administrative Methods and Practices in Public Health

Objective: To improve the administrative methods and practices of the health services.

Probable duration: 1966-

Assistance provided: Advisory services by the administrative methods adviser and the consultant assigned to project AMRO-3606.

Work done: The National Health Service organized, with the collaboration of the Organization, training courses in the various fields of administration. A second 4-month course for administrative personnel of public health services was held from July to October at the Institute of Administration in the University of Chile. Among the 20 students, 7 were from the National Health Service.

To further strengthen the personnel administration in the Ministry of Health, 2 of its key officials responsible for personnel management were awarded fellowships which permitted them to study personnel systems in other countries (Chile-3100).

CHILE-4200 (-35), Nutrition

Objective: To develop a coordinated program to improve the nutritional status of the population of the Provinces of Atacama, Coquimbo, and Linares by increasing the number of school breakfasts, developing vegetable gardens in selected schools, and organizing an education program for teachers and the general public.

Probable duration: 1960-

Assistance provided: Advisory services by staff of other projects in the country.

Work done: A Nutrition Coordination Committee was appointed and it carried out a complete and thorough evaluation of the applied nutrition program. The Committee concluded that the program was generally well accepted, had served to improve coordination among various Government services, and should be expanded. Recommendations were made for adjustments in coordination and improvements in the program.

FAO, UNICEF

CHILE-4300, Mental Health

Objective: To conduct epidemiological studies on mental disorders; and to develop methods and procedures for psychiatric care in communities.

Probable duration: 1965-1967.

Assistance provided: Equipment and supplies; contractual services; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Organization of medical education (mental health)	United States of America	1
1	Psychiatry (rehabilitation of mental patients)	England, France, Netherlands, United States of America	3

Work done: An epidemiological study of the prevalence of alcoholism, insanity, mental retardation, epilepsy, and psychoses was carried out in 3 districts of the northern part of Santiago, and a similar study was initiated in the area served by the Conchalí Clinic, which is also located in the capital. A similar study was completed in the Province of Chiloé, which comprises 1 rural and 2 urban areas.

PAHO/RB, WHO/RB

CHILE-4301, Symposium on Alcoholism

Objective: To study certain aspects of the biochemistry and pharmacology of ethanol and its effects on the human body; and to study the epidemiological aspects of alcoholism.

VIII. PROJECT ACTIVITIES

Place and duration: Santiago, Chile; 15-19 August 1966.

Assistance provided: A travel and per diem grant for participants.

Work done: Specialists from the Western Hemisphere and from European countries, as well as staff of the Pan American Sanitary Bureau, took part in the deliberations. The topics discussed were: biochemistry and pharmacology of ethanol; etiopathogeny and clinical aspects of alcoholism; medical complications of alcoholism; and epidemiology and prevention of alcoholism.

The minutes of the symposium were being prepared for publication in English and in Spanish.

PAHO/RB

CHILE-4601 (-22), Institute of Occupational Health

Objective: To establish an Institute of Occupational Health and Air Pollution Research which will provide services and training facilities for Chile and other countries of the Americas.

Probable duration: 1961-1968.

Assistance provided: 1 chief technical adviser, 4 short-term consultants, and 1 secretary; and equipment and supplies.

Work done: The Institute of Occupational Health and Air Pollution Research consolidated its organization and increased to a considerable extent its accomplishments in providing services, training of personnel, and carrying out research.

The industrial hygiene laboratory completed 3,224 analyses and the physiology laboratory conducted 2,367 determinations, resulting in an increase of 22% and 320%, respectively, over last year. Tests were made on 4,386 workers to determine the incidence of pneumoconiosis. The dosimetry badge service was continued, and the Provinces of Valparaíso, Aconcagua, and Antofagasta were added to the air pollution sampling service. Services on protective measures were rendered to several industries that handle and distribute pesticides.

Research was conducted in the fields of radioactive contamination, pollution from pesticides, benzol poisoning, determination of cancerogenic substances in air, toxic products resulting from decomposition of fish, physical capacity of workers, and the hazards to certain public employees exposed to carbon monoxide.

The course for industrial hygiene and safety technicians was repeated with an attendance of 10 students (8 Chileans and 1 each from Panama and Venezuela); each received a certificate of satisfactory accomplishment. For the first time the Institute offered a 1-year academic course, which included intensive inservice training; this course was conducted with a registration of 5 physicians and engineers (1 each from Bolivia and Nicaragua and 3 Chileans). Personnel of the Institute also lectured at the School of Chemistry of Catholic University and at the School of Public Health, the School of Medicine, and the School of Engineering of the University of Chile, and participated in a course conducted in Buenos Aires, Argentina, and one in San Salvador, El Salvador. The

Institute also gave inservice training to 12 Chilean professionals and 3 nationals from Argentina and Peru.

WHO/UN-DP, WHO/OF

CHILE-4800, Medical Care Services

Objective: To set up, perfect, and reorganize acute treatment and emergency wards at university hospitals in Santiago.

Probable duration: 1966-

Assistance provided: 2 short-term consultants and advisory services by the expert assigned to project AMRO-4806.

Work done: Plans for the opening of acute treatment wards were studied and evaluated at 2 hospitals. The criteria on which to base the general rules for the selection of patients and of the necessary service personnel and equipment were studied in detail in the light of the concept of "progressive care of the patient" that governs the establishment of such units.

The forms were prepared for use in a proposed survey of medical care throughout the country, and a working plan for the manner of its execution was approved.

PAHO/RB

CHILE-4801 (-21), Rehabilitation Center

Objective: To develop a nationwide rehabilitation program, including the coordination of all available resources; to organize a rehabilitation center in Santiago, including a prosthesis workshop and facilities for training personnel for the entire country; and to establish rehabilitation services in selected cities of the provinces.

Probable duration: 1960-1968.

Assistance provided: 1 prosthesis adviser and 1 occupational-therapy adviser; equipment and supplies; and one 3½-month fellowship to study occupational therapy (mental patients) in Chile.

Work done: The activities of the National Pilot Center for Rehabilitation in the fields of occupational therapy, prosthesis and orthosis, were extended with an increase in emphasis on the teaching of occupational therapy, and an Occupational Rehabilitation Department was developed in association with the International Labour Office. This work was also extended to include the rehabilitation of children with speech and hearing problems.

In the field of physical rehabilitation, the Center extended its activities into the provinces. The National Health Service and the Social Security Service established a Physical Rehabilitation Center in the city of Concepción and initiated studies with a view to the formation of a similar center in Valdivia.

Occupational therapy work continued to develop and was given a new impetus when the course initiated by the Recuperation Center was officially recognized by the University of Chile. The University now grants a diploma in occupational therapy. The National Health Service continued to be responsible for the course. Eleven students

completed their clinical practice, and there were 9 in the second year and 11 in the first year of the course.

Occupational rehabilitation was developed with the financial support of the International Labour Office. The Psychotechnic Institute of the National Health Service in Santiago and the Rehabilitation Center in Valparaíso made use of these funds and introduced vocational testing services for industrial workers.

The orthopedic workshop of Outpatient Department No. 2 continued to expand its prosthesis and orthosis services and the second part of the prosthesis and orthosis course, devoted to the adaptation of prefabricated parts for orthopedic apparatus, was completed. The students received instruction in the measurement, assembly, and adjustment of braces for paralyzed legs.

The National Health Service initiated an intensive program for the rehabilitation of deaf-mute children, and with the assistance of the Ministry of Education a start was made on programs of phoniatrics and occupational therapy designed especially for patients with mental problems.

At the Institute of Neurosurgery of the University of Chile, one 4-week course was held in rehabilitation nursing and was attended by 8 nurses of the National Health Service. Theoretical and practical instruction was given, especially in connection with the readaptation of paraplegics.

PAHO/RB, WHO/UN-TA

CHILE-4802, Cancer

Objective: To organize a referral Department of Cytology for the detection of cervico-uterine cancer, as a first step for establishing such a program within the regular health services.

Probable duration: 1965-1968.

Assistance provided: 1 grant; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Cancer control (cytology)	United States of America	6
1	Organization of medicine (cancer control)	Austria, Czechoslovakia, Denmark, England, Hungary, Switzerland, United States of America	3½

Work done: Early in the year a Coordinating Committee was formed with representatives of the National Health Service, the National Medical Service for Employees, the School of Medicine of the University of Chile, and the Chilean Cancer League. The Committee drew up a working program whose goal for the year was to take cervico-uterine specimens on 12,000 women, followed by biopsies in the positive cases. Until 31 October the Cytology Department (established in 1965 in the School of Medicine of the University of Chile) had taken 5,320 samples from 3,800 women. Four cases of invading cancer and 39 of cancer in situ were diagnosed; the examination turned up 98 cases of displasia.

Provision was made under the program for the training of 5 technicians in cytology who, it was expected,

would be able to examine 100 specimens a day after 1 year of training. The 5 technicians were still in training.

PAHO/RB, WHO/RB

CHILE-6100 (-31), School of Public Health

Objective: To strengthen the teaching at the School of Public Health of the University of Chile; and to expand the facilities for training students from other countries of the Americas.

Probable duration: 1953-1968.

Assistance provided: Books and educational materials; and a ½-month fellowship to study public health teaching (occupational medicine), in Peru.

Work done: The School held the following courses to which the Organization sent fellowship-holders from other countries to study the subjects which follow: public health, 18 fellows; public health education, 1 fellow; epidemiology, 2 fellows; epidemiology and planning, 3 fellows; industrial hygiene and safety, 2 fellows; administration of nursing services, 8 fellows (nurses); medical and hospital administration, 7 fellows; and health statistics, 11 fellows.

WHO/RB

CHILE-6200 (-37), Medical Education

Objective: To expand and strengthen medical education by means of training programs in preventive and social medicine and improved pedagogical approaches.

Probable duration: 1962-1968.

Assistance provided: A grant; teaching supplies and equipment; and one 3½-month fellowship to observe medical education pedagogy in England, France, India, Israel, Japan, and Yugoslavia.

Work done: The teaching of preventive and social medicine was added to the 3rd, 4th, and 6th year curricula of the School of Medicine of the University of Chile, in Santiago.

PAHO/RB

CHILE-6201 (-39), Training in the Medical Use of Radioisotopes

Objective: To develop, at the Salvador Hospital attached to the University of Chile, a Latin American center for the training of physicians in the medical use of radioisotopes.

Probable duration: 1962-1969.

Assistance provided: Radioisotopes for teaching purposes.

Work done: The V Annual Training Course on the Medical Use of Radioactive Isotopes was conducted from May to November for 3 physicians from Argentina, El Salvador, and Mexico, respectively. In addition to receiving general training in the application of radioisotopes for medical diagnosis and therapy, these physicians re-

VIII. PROJECT ACTIVITIES

ceived specialized training in their own fields of special interest, which included endocrinology, gastroenterology, hematology, cardiology, and urology.

PAHO/RB

KF

CHILE-6400, Sanitary Engineering Education

Objective: To improve the technical training of engineers engaged in sanitary engineering and strengthen the teaching of this subject in the School of Physical Sciences and Mathematics and in the School of Public Health, both in the University of Chile.

Probable duration: 1965-1970.

Assistance provided: 7 short-term consultants and advisory services by personnel of other projects of the country, of Headquarters and of projects AMRO-2106 and -6403; contractual services; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Analysis of water and sewage	Brazil, Mexico, Peru, Venezuela	2
3	Rural water supply	Argentina	3/4
1	Sanitary engineering	United States of America	12

Work done: Six intensive courses were held at the School of Engineering of the School of Physical Sciences and Mathematics: on the application of computers to sanitary engineering problems, from 25 May to 4 June, for 30 students; on the treatment of industrial waste, from 7 to 16 July, for 25 students; on factors in the design of pumping plants for sewage, from 17 to 27 August, for 33 students; on the training of operators of potable water and sewage plants, from 24 to 30 September, for 24 students; on modern systems of rapid filters, from 20 to 29 October, for 40 students; and on ground water, from 12 to 22 December, for 36 students. At the School of Public Health 2 intensive courses held dealt, in the one case, with the design of systems for potable water for the disposal of excreta in rural communities, from 25 July to 6 August, for 20 students; and, in the other, with the collection, transportation and final disposal of urban refuse, from 5 to 16 December, for 34 students. The total number of persons trained in these 8 courses was 242.

WHO/RB

CHILE-6500, Veterinary Medicine Education

Objective: To improve the teaching program at the School of Veterinary Medicine (Livestock Sciences) of the National University, emphasizing veterinary medicine and public health.

Probable duration: 1966-1971.

Assistance provided: 1 short-term consultant and advisory services by Headquarters personnel.

Work done: The curriculum for biostatistics was reorganized, and a 4-week course was held on the principles and methodology of the teaching of statistics and was attended by teachers from various departments and students in their final years in biostatistics and statistics. The public health

department of the School outlined a study on leptospirosis and brucellosis in the coastal areas of the country and the Organization supplied antigens for diagnostic purposes.

PAHO/RB

CHILE-6600, Dental Education

Objective: To add the teaching of preventive and social aspects of dentistry to the curriculum of the School of Dentistry of the University of Concepción by establishing a Department of Preventive and Social Medicine.

Probable duration: 1965-1971.

Assistance provided: Advisory services by Headquarters personnel.

Work done: An agreement for collaboration was signed by the Ministry of Public Health, the 3 dental schools in the country, and PAHO/WHO.

Negotiations were completed toward the establishment at the University of Concepción of an integrated Department of Preventive and Social Medicine and Dentistry to serve both Schools. This Department would consist of one section for medicine and one for dentistry. Technical assistance would also be rendered under this agreement to the Schools of Dentistry of the University of Chile at Valparaíso and Santiago.

COLOMBIA-0200 (-5), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1973, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 medical officer, 2 sanitary engineers, 2 entomologists, 1 assistant entomologist, 6 sanitation inspectors, and advisory services by Headquarters personnel; drugs and other supplies.

Work done: 655,897 blood smears were examined and 22,135 (3.37%) were positive; 361,733 of the smears and 4,597 (1.26%) of those positive were from consolidation-phase areas.

During the 15th spraying cycle (January-June) 339,962 houses were sprayed; the population directly protected was 1,546,160 inhabitants. During the 16th cycle (July-December) 337,266 houses were sprayed, giving direct protection to 1,552,673 inhabitants. In some areas, spraying cycles timed according to the season of transmission were continued.

Presumptive radical-cure treatment with a combination of chloroquine, primaquine, and pyrimethamine, given for 3 days simultaneously with the regular spraying cycle, was initiated in an area in the southern part of the Pacific Coast. This treatment was also used for all cases and all persons found with fever in several foci which were discovered in consolidation-phase areas.

Financial difficulties prevented the program from operating adequately in the first half of 1966, after which time proper funds were provided and the program began recruiting and training personnel and expanding its operations in an effort to reach optimum operational standards.

PAHO/SMF

UNICEF

COLOMBIA-0201, Study of Drug Therapy on Malaria

Objective: To assess the usefulness of a 3-day, 3-drug treatment for the radical cure of *Plasmodium vivax* infections.

Probable duration: 1966-1967.

Assistance provided: Advisory services by Headquarters personnel and by the team assigned to project Colombia-0200; and a grant for local field operations.

Work done: Mass blood surveys were carried out in the Magdalena River valley in the Department of Santander, to locate cases *P. vivax*. Treatments were begun in April. The experiment called for the establishment of groups of subjects, each group including: 1 parasitized person treated with the classical 14-day radical-cure treatment with chloroquine and primaquine, 1 parasitized person treated with the experiment treatment, and 1 nonparasitized person treated during 14 days with primaquine to eliminate any latent infection. The persons selected resided in neighboring areas and pertained to the same age-sex group. After the treatment period, blood smears were taken monthly to detect any recurrence of parasitemia. The study area is one where transmission is widespread, and the control included in each human trio served to measure the reinfection rate. As of December, about 40 groups were under followup study and additional trios were being formed when possible. A considerably greater number of cases and controls not grouped into trios (for lack of cases meeting all the criteria for grouping) were also being followed up.

PAHO/SMF

COLOMBIA-0400, Fellowships for Tuberculosis

One 3/4-month fellowship was granted to study laboratory services (tuberculosis), in Venezuela.

PAHO/RB

COLOMBIA-0500, Leprosy Control

Objective: To organize a leprosy control program based on modern techniques and procedures.

Probable duration: 1958-1967.

Assistance provided: Consultant services by the leprologist assigned to project AMRO-0504.

Work done: From 1 January to 31 December 1965, 1,087 new leprosy cases were detected; 357 cases of dermatrophic physical disabilities were registered, as were 93 mitrophic, 35 osteotrophic, and 9 of ocular impairment.

The Dermatology Clinics, which by legal decree are part of the Health Centers, are the health units responsible for leprosy control. In 1966, however, they continued to work separately, and the integration of health activities that had been initially sought did not occur.

During 1966, 24 Dermatology Clinics were functioning: 11 at the Departmental level and 12 at the Health District level, in addition to the Dermatology Center in

Bogotá. Because of lack of physicians, 2 units suspended their case-detection activities, but the patients continued to receive the prescribed medication, dispensed by auxiliary personnel. Nearly all the control services limited their activities to their own headquarters. The program attended to spontaneous public demand, almost exclusively.

From 1 January to 30 June 1966 the 23 Dermatology Clinics other than the one in Bogotá examined 40,907 persons and discovered 498 new cases, indicating a prevalence of 12.17%. At the latter date the total number of registered leprosy cases was 16,954, of which 14,820 were under surveillance. The number of registered contacts amounted to 49,001, of which 30,436 were under surveillance.

From 1 July to 31 December, 589 additional cases were detected.

UNICEF

COLOMBIA-0501, Epidemiological Research in Leprosy

Objective: To carry out an epidemiological study on leprosy in an area having a large concentration of cases; and to perform field research utilizing new techniques.

Duration: April 1965-October 1966.

Assistance provided: While this project was being implemented, WHO (Geneva) provided the services of 1 epidemiologist and 1 laboratory expert, transportation and laboratory equipment, and laboratory supplies. On the other hand, the personnel of project Colombia-3100 cooperated in some administrative activities and provided liaison with the national health authorities through the PAHO/WHO Country Representative.

Work done: The specific objectives of the project were: (a) to examine clinically the entire population served by the Agua de Dios Sanatorium (Department of Cundinamarca); (b) to administer Mantoux and Mitsuda reaction tests to the population examined; (c) to conduct bacteriological examinations of the entire population (d) to analyze the value of the sulfonemia test as a means for evaluating regularity of treatment; (e) to determine blood groups; and (f) to record the clinical history of the families covered by the study.

The residents of Agua de Dios were examined clinically, and tuberculin tests and Mitsuda tests were administered to the population of that area. Samples were taken for bacteriological examination, the value of the sulfonemia test was analyzed, blood groups were determined, and the clinical history of the families covered by the study was recorded.

During the development of the project, 7,564 persons were examined, among whom 3,607 cases were detected. During 1965, in the course of re-examination of school children, 1,579 children were examined, and 50 new cases were detected; during the work performed in 1966, 1,373 were examined, and only 6 new cases were registered. Determination of blood groups was effected on the basis of 2,857 samples, of which 1,961 were taken from leprosy cases.

VIII. PROJECT ACTIVITIES

Analysis of the sulfonemia test was effected with 140 patients in 5 hospitals and 352 ambulatory patients. The test showed little specificity and sensitivity.

COLOMBIA-2200 (-25), Water Supplies

Objective: To carry out a national water supply program; and to make a study of the planning, design, financing, construction, and operation of municipal water supply service.

Probable duration: 1960-1969.

Assistance provided: 1 sanitary engineer, 2 short-term consultants, and advisory services by professional personnel assigned to the Zone IV Office and projects Colombia-3100 and AMRO-2208.

Work done: A thorough study of the technical and administrative aspects of the National Institute for Municipal Development was carried out and produced 5 reports containing recommendations for its technical and administrative reorganization. Some of these recommendations were acted upon during the year.

The Institute continued to implement IDB Plan No. 1 which, scheduled for completion in August, had to be extended for a variety of reasons. At year's end, there were 58 water supply systems under construction, including 35 treatment plants; 30 sewerage systems were also under construction.

National and international staff discussed various aspects of the water fluoridation program in Bogotá, where 1 short course on the subject was conducted in July at the School of Engineering of the National University and attended by 15 persons.

PAHO/RB, PAHO/CWSF

IDB

COLOMBIA-2300 (-22), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1951-1967.

Assistance provided: 1 sanitation inspector, technical guidance and supervision by the medical officer assigned to project Venezuela-2300, and advisory services by professional personnel of project AMRO-2300.

Work done: Treatments performed in Cúcuta during 1966 failed to eliminate the reinfestation (discovered in late 1965). The persistence of the reinfestation was due to the resistance of the mosquito to chlorinated insecticides and to the impossibility, in view of the scarcity of campaign personnel, of sustaining the work at a pace that might allow the phosphorous compound that began to be used in July to be fully effective.

In October the surveillance service again found the mosquito in the port of Santa Marta, which had been negative for *A. aegypti* since 1964. The reinfestation had not been eliminated by the end of 1966.

Except for Cúcuta and Santa Marta, the country was still considered to be free of the mosquito according to the results of inspections which the surveillance service

carried out during the year at the ports of Barranquilla, Buenaventura, Cartagena (twice) and Las Flores, the Barranquilla and Cali international airports, San Luis (twice), and 6 localities on the Venezuelan border.

At year's end the Government was studying the possibility of considerably increasing the campaign budget for 1967 in order to eliminate as soon as possible the infestation in Cúcuta and Santa Marta and intensify surveillance against further reinfestation of the country.

PAHO/RB

COLOMBIA-3100 (-4), National Health Services

Objective: To prepare a national health plan; to strengthen the Ministry of Health and the departmental and local services; to extend integrated health-services coverage to the entire population; and to train professional and auxiliary personnel.

Probable duration: 1951-1969.

Assistance provided: 2 medical advisers (one of them the PAHO/WHO Country Representative), 1 administrative assistant, 1 sanitary engineer, 1 public health nurse, 3 short-term consultants, and advisory services by the nurse assigned to project AMRO-3204; equipment and supplies; 2 grants; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical pedagogy (morphology)	United States of America	12
1	Public health planning	Chile	3½

Work done: The contracts with 18 departments, 3 territorial districts, and 4 special districts, for the integration of health services, were continued in force by Executive Decree No. 14,099 of July 1966. Twenty-two Section Boards were created, 15 health service heads were appointed in the various health sections of the country, and work was continued toward the establishment of these Boards and of their rules and regulations.

The Ministry of Public Health established the regulations, functions, and working rules of the central units of the Division of Medical Care. The rules and regulations for the operation of private hospitals and clinics were also promulgated. Progress was made in the drafting of rules for the compulsory medical service and for the establishment of psychiatric units at general hospitals, and a draft of rules and regulations for mental hospitals was formulated. Work continued toward reorganization of the mobile dental health units for better utilization of available resources. Communicable disease control entered the planning stage, and data were collected on the 1965 venereal disease campaign. In biostatistics, headway was made in mortality data and in a census of existing health institutions at the same time that a study of human resources and specialized medical education was going forward.

Negotiations were continued to obtain foreign financing for the basic rural sanitation and welfare program.

PAHO/RB, WHO/RB, WHO/UN-TA AID, UNICEF

COLOMBIA-3101 (-21), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Enteric diseases (bacteriology)	United States of America	3/4
2	Epidemiology	Chile	6 1/2
2	Public administration	Ditto	4
2	Sanitary engineering	Argentina	3

PAHO/RB, PAHO/SFHP**COLOMBIA-3102 (-200), Fellowships for Health Services**

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics	Mexico	3
1	Nursing services	Ditto	10
1	Rehabilitation (orthopedic appliances)	Brazil	4

WHO/RB**COLOMBIA-3301 (-52), National Institute of Health (Carlos Finlay)**

Objective: To strengthen the services that the Yellow Fever Section of the National Institute of Health renders to other countries in connection with the Hemisphere-wide campaign against yellow fever, namely, research, laboratory diagnosis, and vaccine preparation.

Probable duration: 1950-

Assistance provided: 1 short-term consultant and advisory services by Headquarters and Zone IV Office staff; a grant; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Health statistics	Brazil	11
1	Laboratory services (smallpox)	Ditto	1/2

Work done: 1,346,430 doses of yellow fever vaccine were produced up to September, and 845,500 doses were distributed to Argentina, Bolivia, Chile, Curaçao, Ecuador, El Salvador, Guatemala, Haiti, Jamaica, Liberia, Mexico, Nicaragua, Panama, Peru, and Venezuela.

In Colombia 67,653 persons were vaccinated, thereby increasing the total number of persons vaccinated against yellow fever since initiation of the campaign to 3,762,267.

The Institute received 598 viscerotomy specimens of which 3 from the Department of Antioquia and the territorial district of Caquetá were positive.

PAHO/RB**COLOMBIA-4100 (-28), Social Services**

Objective: To improve the social services that are provided for the protection and rehabilitation of minors with social problems; and to train personnel.

Probable duration: 1962-1967.

Assistance provided: Advisory services by staff of other projects in the country.

Work done: Implementation of this program was continued in the field of social problems of minors, without giving sufficient consideration to the health aspects. The program covered 16 kindergartens, each of which had 70 children, 14 foster homes, each of which had 15 children, and 21 community centers.

From January to July, 8 courses on various fields related to child and family welfare were conducted and attended by 370 persons.

UNESCO, UNICEF

COLOMBIA-4200 (-26), Nutrition

Objective: To improve the level of nutrition in the Departments of Caldas, Cauca, and Norte de Santander, especially in the rural areas, in coordination with the local health, education, and agricultural services; to train personnel at local and intermediate levels; and to establish food-preparation and school-garden demonstration services in the schools of the area.

Probable duration: 1961-

Assistance provided: Advisory services by the nutritionist assigned to project AMRO-4204; and two 2 1/2-month fellowships for studies on nutrition, in Guatemala.

Work done: The program was considerably expanded under the leadership of the National Institute of Nutrition, to which the following selected figures attest: with the help of health, education, and agriculture agencies and of Acción Comunal, the Institute gave 2,110 hours of nutritional instruction to 1,130 professionals; 4,158 hours to 3,452 persons in intermediate occupational categories (teachers, nursing assistants, etc.); 906 hours to 1,512 secondary school students, and 11,588 hours to 43,885 other persons; all totaling more than 18,000 hours of instruction to almost 50,000 persons.

Food supplement programs organized in cooperation with CARE and CARITAS distributed more than 2 million rations to more than 50,000 persons. During the year, 83 new agricultural extension organizations with 2,002 members, as well as 1,863 new minor crops and productive undertakings, were established. Furthermore, 83 nutritional studies and surveys were made.

By the end of the year, 6 nutrition rehabilitation centers with accommodation for 167 patients were in operation.

The Institute continued the studies and research begun in earlier years, such as the important study on growth and development, and participated in the preparation and development of the Joint WHO/FAO Seminar on the Evaluation of Applied Nutrition Programs, which was held at Popayán.

PAHO/RB, PAHO/SFHP

FAO, UNICEF

COLOMBIA-6100 (-24), School of Public Health

Objective: Up to 1963, to strengthen the School of Public Health of the National University of Colombia; and, since

VIII. PROJECT ACTIVITIES

1964, to organize and develop the School of Public Health of the University of Antioquia.

Probable duration: 1959-1963; 1964-1969.

Assistance provided: 1 short-term consultant; contractual services; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Public health administration (health statistics)	Brazil	11
1	Public health teaching (hospital administration)	Chile, Peru, Puerto Rico, Venezuela	2½

Work done: The following courses for physicians were held: specialization in teaching and research, for 7 residents—3 in their 3rd year, 2 in their 2nd, and 2 in their 1st; for a Master's Degree in Public Health (1 year), for 11 students; in administration (10 weeks), for 14 hospital executives (physicians); in public health planning (8 weeks), for 8 students. A 1-year course for the degree of Master of Public Health was held for 3 dentists; 14 persons attended a 6-month course to qualify as assistants in health-services administration; 17 others obtained a certificate of assistant in health statistics, after a 6-month course; another 60 qualified as sanitation inspectors after attending 6-month courses; and 20 rural health promoters were trained in 7 weeks.

WHO/RB

UNICEF

COLOMBIA-6200 (-34), Health Manpower Studies

Objective: To carry out a study of health manpower requirements and the means for meeting them; and to collect data for a reorientation of medical education and health planning and the development of a working methodology that may serve as a model for other countries.

Probable duration: 1964-1967.

Assistance provided: 8 short-term consultants and advisory services by Headquarters and Zone IV Office personnel; equipment and supplies for field studies; and a grant for local costs.

Work done: All data collected in the 8 areas of the study were processed for final analysis. The results of the study will be presented to an international conference on health manpower and medical education, scheduled to be held in Venezuela in 1967.

PAHO/RB, PAHO/OF

Milbank Memorial Fund

COLOMBIA-6201, Medical Education

Objective: To strengthen medical education by emphasizing the preventive and social aspects of the practice of medicine; to teach medical students how to approach epidemiological, preventive-curative, and social problems; to improve the teaching in the schools of medicine by revising the curricula in the various fields; and to provide the medical profession with a periodical medical bulletin containing bibliographic material and topical information.

Probable duration: 1965-1972.

Assistance provided: 2 short-term consultants and advisory services by Headquarters, Zone IV Office, and project AMRO-6204 personnel; a grant to the Colombian Association of Medical Schools; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Biochemistry	United States of America	12
1	Medical education pedagogy	Brazil, Chile, Mexico	1½
1	Ditto (biochemistry)	Mexico	11
1	Ditto (food analysis)	Peru	¾
1	Ditto (maternal and child health)	Chile	¾
1	Ditto (microbiology)	Brazil	12
2	Ditto (pharmacology)	Chile	3
1	Microbiology	Brazil	10

Work done: The Colombian Association of Medical Schools continued its postgraduate training program for medical professionals practicing in small towns and 44 two-day courses were conducted and attended by over 600 participants. The II Seminar on Epidemiology was held with the technical assistance of a team of 6 international consultants, from 21 March to 2 April, and was attended by 40 key medical faculty members of the country's 7 medical schools.

The School of Medicine of the University of Antioquia, in Medellín, initiated a faculty training center for medical schools in Latin America. During a 5-year period the School will appoint 10 new full-time professors of which the first 4 were appointed in June. The School has planned to provide postgraduate training for 50 school teachers.

PAHO/RB, PAHO/OF, WHO/RB

KF, RF

COLOMBIA-6400 (-33), Sanitary Engineering Education

Objective: To improve the technical training of engineers who work in the field of sanitary engineering; and to promote the development of a sanitary engineering research center at the National University of Colombia.

Probable duration: 1964-1967.

Assistance provided: 2 short-term consultants and advisory services by professional personnel of Headquarters, of the Zone IV Office, and of other projects in the country; grants; and contractual services.

Work done: 2 professors of international standing were appointed, one a specialist in the bacteriology of sanitation and the other in the design of sanitation works, under the program of the National University of Colombia.

Five intensive courses were held in Bogotá: 3 were carried out at the School of Engineering of the National University of Colombia on: programming methods applied to sanitary engineering, from 21 March to 1 April, for 11 students; fluoridation of water, from 4 to 11 July, for 13 students; and water meters and house connections, from 14 to 25 November, for 22 students; the remaining 2 courses were held at the Los Andes University on: application of electronic computers to sanitary engineering problems, from 18

to 29 April, for 8 students; and manual systems of planning and control of construction, from 26 September to 11 October, for 15 students. At the School of Mines of the National University of Colombia, in Medellín, 1 course was held on multiple uses of river basins, from 29 August to 10 September, for 19 students. The total number of engineers who attended these 6 courses was 88.

A draft agreement between the Ministry of Public Health, the University of Valle and PAHO was prepared on the conduct of activities under the project at the School of Sanitary Engineering of this University, in Cali.

PAHO/RB, PAHO/CWSE,
WHO/RB

UNESCO, UN-DP

COLOMBIA-6600 (-27), Teaching of Preventive Medicine and Dentistry

Objective: To integrate the teaching of preventive medicine and preventive dentistry at the University of Antioquia, in Medellín, and at the National University under a Department for both Schools Medicine and Dentistry in each University; and to establish a center for research in general and public health dentistry.

Probable duration: 1961-1968.

Assistance provided: 5 short-term consultants and advisory services by personnel from the Zone IV Office; and supplies for the Department of Preventive and Social Dentistry of the University of Antioquia.

Work done: The School of Dentistry of the University of Antioquia revised its program for the teaching of biostatistics and epidemiology, expanded the extramural activities of its students, and established a course for the training of dental hygiene auxiliaries and dental assistants.

The National University drew up a plan for the establishment of a Department of Preventive and Social Medicine and Dentistry. The School of Dentistry assessed the instruction it offers and drafted plans to strengthen it, preparing a new curriculum and a program for the advanced training of its faculty; it also established a Section of Preventive and Social Dentistry and began recruiting faculty for it.

PAHO/RB

KF

COSTA RICA-0200 (-2), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 3 sanitation inspectors, and advisory services by personnel of project AMRO-0200; antimalaria drugs and other supplies and a limited amount of equipment; and one 5½-month fellowship to study malaria, in El Salvador, Mexico, and Venezuela.

Work done: Financial difficulties delayed spraying cycles and limited evaluation activities: 44,978 house-sprays were performed and 250,135 blood smears were ex-

amined; among the 3,047 (1.2%) smears found positive, 412 were from areas in the consolidation phase. Personnel of AMRO-0200 provided advisory services on the improvement of laboratory services.

The Government of Costa Rica completed arrangements with the United States Agency for International Development for a loan with which to finance the eradication campaign. An evaluation of the current condition of malaria in the country and a revision of the 3-year plan of operations were carried out during November by a joint team of staff members of the United States Public Health Service and the Pan American Sanitary Bureau.

PAHO/SMF, WHO/MESA

UNICEF

COSTA RICA-0400, Tuberculosis Control

Objective: To organize and develop a demonstration area in the Province of Guanacaste for the purpose of obtaining epidemiological information, applying and evaluating practical tuberculosis control methods, and training medical and auxiliary personnel in order to gradually extend the program to other areas of the country.

Probable duration: 1964-1968.

Assistance provided: Advisory services by staff of the Zone III Office, of projects AMRO-0400 and -0403, and of other projects in the country.

Work done: The Government appointed, at the ministerial level, an adviser to the antituberculosis campaign. A preliminary study of a tuberculosis control program was carried out, focussing, basically, on the epidemiological aspects of the disease and the participation of local health organizations in the implementation of the program. Counting since the beginning of the program, the PPD test had been applied to 64% of the persons to be examined; of that figure, 45% were examined during the first 10 months of the year and 71% of them were vaccinated with BCG.

UNICEF

COSTA RICA-2200 (-22), Water Supplies

Objective: To develop programs to provide public water supply and sewerage systems to urban and rural communities of the country; and to establish the National Water Supply and Sewerage Service (SNAA), providing for its proper administration.

Probable duration: 1960-1968.

Assistance provided: 1 sanitary engineer, 1 short-term consultant, and advisory services by professional staff of project AMRO-2203.

Work done: In San José the emergency water supply augmentation program was implemented and during the first half of the year new wells provided 150 liters per second of additional water. The nearby La Libertad system, supplying a further 80 liters per second, was put in service in December. The enlargement of the Tres Ríos treatment plant and the construction of 2 new storage tanks were completed. The remaining 3 storage tanks and several portable filter units at other sites were yet to be com-

VIII. PROJECT ACTIVITIES

pleted. For long-term water supply to the Capital, a firm of consultant engineers completed plans for the development of additional sources at Puente Mulas and Potrerillos, and the first phase of construction was planned to begin as soon as possible. These works are financed by loans from the Export-Import Bank and the Agency for International Development in the amounts of US\$4.5 and 3.5 millions, respectively.

The study and cost estimate for sewerage for the Capital was completed, financed by the Inter-American Development Bank, in the amount of US\$140,000. When user-charge studies under way have been completed a loan for construction will be sought from the same source. The same consultant firm was preparing projects for the construction of water and sewerage works in 12 additional cities. These design activities are financed by a loan of US\$100,000 from IDB and further loans will be sought from the same source for construction. The design for 6 water supply projects and 9 sewerage projects were completed, and the remainder were from 40% to 80% complete.

Under the loan of US\$1.3 million provided by the IDB for the rural water supply program, the Projects Department designed about 70% of the 80 systems planned to serve 131 communities. Construction started on 10 systems which will serve 15 communities.

A program supported for the exploration of ground water resources was approved in principle by the National Water Supply and Sewerage Service, the Ministry of Agriculture, and the United Nations Development Program.

A study was made of the current water-rates system as a first step for updating it.

Promotional work was carried out in relation to community development and the rural water supply program.

PAHO/CWSF

COSTA RICA-3100 (-14), National Health Services

Objective: To prepare and implement a national health plan, as part of the national economic and social development plan; to improve the administration and expand the health services, including medical care services; to train the necessary professional and auxiliary personnel; and to carry out an extensive rural sanitation program.

Probable duration: 1959-1969.

Assistance provided: 1 medical adviser (PAHO/WHO Country Representative), 1 public health nurse, and advisory services by the nurse assigned to project AMRO-3203; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Enteric diseases (bacteriology)	United States of America	¾
1	Medical pedagogy (laboratory in human relations)	Chile	½
1	Mental health	United States of America	12
1	Ditto (epidemiology)	Ditto	¾
1	Industrial hygiene	Chile	10

Work done: A special committee reviewed the general health bill in consultation with professional schools and

organized community groups. The Ministry of Public Health established a technical council in which the directors, the international advisers and the Office of Demographic Studies participate, for the conduct of population research.

The diagnosis of the health situation was completed in April. The Planning Group, which includes representatives of the Ministry of Public Health, the National Planning Office, the Technical Council of Medical and Social Care, the Costa Rican Social Security Fund, and the National Water and Sewerage Authority, began functioning in July.

A survey on nutrition covering many aspects of the problem and in which the Governments of Costa Rica and the United States of America, INCAP, and PASB participated, was conducted from 2 May to 27 July. Three new nutrition centers went into operation, thus raising the total of such centers to 96.

Experts on the epidemiology of alcoholism met under the auspices of the Organization, and over 300 nurses from Central America, Colombia, and Panama took part in the First Nursing Seminar.

A manual of standards and a set of regulations for lay midwives were drawn up and made official by an executive decree, to make for better control and utilization of those midwives.

The Department of Food and Veterinary Control approved its regulations and conducted a program of inspection and supervision in food control.

The Ministry of Public Health and several municipalities coordinated their efforts in the building and installation of latrines. The Legislature is considering a national program of latrine installation to improve environmental sanitation. The Costa Rican Social Security Fund expanded its hospital facilities; several buildings were under construction or nearing completion, including the 650-bed Mexico Hospital in San José and the 397-bed hospital in Puntarenas. Other hospitals were being remodeled. The Fund also began to operate 2 outlying clinics in San José and operated 4 others elsewhere in the country. An agreement between the Government and AID continued the health care program by means of mobile units: 12 of them brought periodic medical care to 131 localities. Two health units and 2 health posts were opened.

An epidemiological study was made of leprosy in the country and programs of patient care, leprosy contact supervision and health education, were conducted. There were 723 leprosy cases under control, of which 100 were hospitalized, 360 were ambulatory, and 263 were discharged. A total of 3,121 contacts in 521 families were controlled in 147 localities. Thirty new cases were detected.

To control an outbreak of canine rabies in Guanacaste Province, 3,083 dogs were vaccinated and 7,146 destroyed. Laboratory tests revealed that 33 animals were positive. Rabies treatment was given to 45 persons.

PAHO/RB, WHO/UN-TA

UNICEF

COSTA RICA-3101 (-200), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Food control	Panama	3
1	Health statistics	Colombia	6¼

Awards	Field of study	Place of study	Months
1	Industrial hygiene (for engineers)	El Salvador	1/2
1	Laboratory services (smallpox)	Brazil	1/4
1	Maternal and child health	Mexico	10 1/2
1	Medical pedagogy	Honduras	1/2
1	Nursing education	Puerto Rico	12
1	Public health administration	Brazil	11
1	Ditto (tuberculosis)	Venezuela	11 1/2
1	Public health nutrition	Guatemala	2 1/2
1	Radiation protection in industry	El Salvador	1/2
1	Sanitary engineering	Guatemala	11
1	Tuberculosis control (epidemiology)	Czechoslovakia, Denmark, Italy, Venezuela	2 1/4

WHO/RB

COSTA RICA-4200 (-21), Nutrition

Objective: To improve the nutritional level of the population by studying the factors that determine and contribute to malnutrition in the country, by offering dietetic and nutritional education, and by rehabilitating the undernourished.

Probable duration: 1960-1969.

Assistance provided: Advice by INCAP personnel.

Work done: An evaluation of the Applied Nutrition Program pointed out some of its strengths and weaknesses. The Plan of Operations was extended for another 2 years.

A nutrition survey was conducted with the assistance of INCAP and the Office of International Research of the U.S. National Institutes of Health and the major nutrition problems of the country were identified.

The services provided by the Nutrition Rehabilitation Centers were extended.

FAO, UNICEF

COSTA RICA-6200, Medical Education

Objective: To strengthen medical education by improving the professors' training in basic sciences.

Probable duration: 1965-

Assistance provided: Advisory services by Headquarters and AMRO-6210 personnel.

Work done: A 2-week course entitled Laboratory of Human Relations and Medical Teaching was held at the School of Medicine of the University of Costa Rica, from 21 February to 5 March, for 21 professors from Costa Rica, 2 each from Honduras, El Salvador, and Panama, and 1 from Nicaragua.

COSTA RICA-6300 (-18), Advanced Nursing Education

Objective: To establish at the School of Nursing an advanced education center to train nurses in teaching, in

supervision, and in other specialties; and to evaluate the work of the School.

Probable duration: 1959-1968.

Assistance provided: 1 nurse educator, 1 short-term consultant, and advisory services by the nurse assigned to project AMRO-3203; and one 11 1/2-month fellowship to study nursing education (teaching), in Puerto Rico.

Work done: Plans were made by the pertinent authorities of the country, the Pan American Sanitary Bureau, and the University of Kansas for the latter's Medical Center, through its School of Nursing, to assist in nursing education in Costa Rica. The assistance will consist of preparing a collegiate course of studies in nursing and, in time, will include the exchange of students.

The Schools' negotiations for incorporation in the University of Costa Rica terminated successfully and the change was scheduled to become effective on 1 January 1967.

PAHO/RB

COSTA RICA-6400, Sanitary Engineering Education

Objective: To improve the teaching of sanitary engineering at the University of Costa Rica.

Probable duration: 1965-1969.

Assistance provided: 2 short-term consultants and advisory services by personnel of other projects in the country and by the engineer assigned to project AMRO-2103; and 1 grant.

Work done: One intensive course on pumps and pumping stations was held at the School of Engineering of the University of Costa Rica, from 11 to 23 July, for 11 students.

PAHO/RB

CUBA-0200 (-5), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1959-1969, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 medical officer and 2 sanitation inspectors; antimalaria drugs and other supplies; and a limited amount of equipment.

Work done: 687,228 house-sprays were performed. From January through October, 569,998 blood smears were examined and 36 (0.001%) were positive. These cases, which for the most part were confined to localized areas, were investigated and radical treatment was given.

At the end of August, 9,417 km², with a population of 450,742 inhabitants, entered the consolidation phase.

WHO/RB

UNICEF

CUBA-2200, Water Supplies

Objective: To develop a national program for the construction of water supply installations in urban and rural

VIII. PROJECT ACTIVITIES

areas; and to improve the administration of the national and local agencies in charge of those services.

Probable duration: 1966-

Assistance provided: Advisory services by the sanitary engineer assigned to project Cuba-3100 and by professional personnel of the Zone II Office.

Work done: Working relations were established with the National Institute of Hydraulic Resources and the National Commission on Water Supply and Sewerage (CONACAS), and the terms of reference for PASB assistance in various fields were defined. Preliminary arrangements were made to hire 1 short-term consultant to review the design and operation of the Holguín and Santiago de Cuba plants.

CUBA-2300 (-1), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1952-1967.

Assistance provided: 1 medical officer, 3 sanitation inspectors, and advisory services by professional personnel assigned to project AMRO-2300; and equipment and supplies.

Work done: The campaign was continued chiefly in the Provinces of Pinar del Río, Havana, and Matanzas. Campaign activities elsewhere were confined to inspection and treatment work in some municipalities in the Province of Las Villas. Results were limited owing to frequent reinfestations in the areas under treatment and to the impossibility of adequately covering them with the personnel available.

To eliminate these difficulties and ensure the success of the program, the Government decided to incorporate the campaign to the general health services and step up the eradication effort to cover simultaneously all infested areas in the country. For the integration and expansion of the campaign, the PASB collaborated with the Government in the preparation of the plan of operations.

PAHO/RB

CUBA-3100 (-3), Health Services

Objective: To improve the health services at the national, intermediate, and local level.

Probable duration: 1959-1969.

Assistance provided: 1 medical adviser (PAHO/WHO Country Representative), 1 sanitary engineer, 2 public health nurses, 4 short-term consultants, and advisory services by the nurse assigned to project AMRO-3202; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics	Chile	3
2	Ground water development	Mexico	¼
1	Epidemiology	Chile	10
1	Laboratory services (microbiology)	Ditto	3
1	Ditto (smallpox and bacteriology)	Brazil, Chile	1

Awards	Field of study	Place of study	Months
1	Medical pedagogy (pediatrics)	Mexico	¼
1	Pediatrics (public health nutrition)	Ditto	10
2	Public health administration	Ditto	½
5	Ditto	Ditto	10½
2	Ditto	Chile	10
1	Public health teaching (epidemiology)	Ditto	5
2	Sanitary engineering	Mexico	10
1	Veterinary medicine	Chile	10
2	Water and sewage water	Mexico	1

Work done: The Ministry of Public Health converted its vice-ministries into national departments directly under the Minister. A National Nutrition Department was established, and the Carlos J. Finlay Public Health School was raised to the rank of department. Nineteen integrated polyclinics were organized.

Attempts were made to strengthen the regional level as the basis for developing local health services. The documents The Integrated Polyclinic Sector Area and The Integrated Polyclinic, establishing the structure, functions, and working rules of local health services, were approved for nation-wide application. Nine polyclinics in various health areas were reorganized on the basis of these documents, and their outpatient, nursing, sanitation, and administration services were strengthened. A study was made of nursing personnel activities at 8 hospitals in the Province of Havana, and the results were published.

Two short courses in the treatment of domestic and industrial sewage were conducted for 37 engineers and technicians, and 2 seminars in nursing administration and operations were respectively carried out for 32 nursing instructors and 27 nurses.

In relation to other training activities carried out throughout the country see project Cuba-6101.

PAHO/RB, WHO/RB, WHO/UN-TA UNICEF

CUBA-3101 (-200), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Enteric diseases (bacteriology)	United States of America	¼
1	Maternal and child health (prematurity)	Chile	4
1	Medical pedagogy (obstetrics)	Denmark, England, Spain, Sweden	4
4	Nursing education	Mexico	1
1	Nursing services (pre-maturity)	Chile	6
1	Pediatrics (public health nutrition)	Mexico	12

WHO/RB

CUBA-3102 (-16), Emergency Health Services

Objective: To strengthen the health services affected by hurricane Flora (1963); to promote the establishment of out-

patient clinics in the rural hospitals of the affected zone; and to train technical and auxiliary personnel.

Probable duration: 1963-1966.

Assistance provided: Advisory services by the personnel of other projects in the country.

Work done: The objectives of this project are part of project Cuba-3100, and are therefore described under that project.

UNICEF

CUBA-4200 (-13), Nutrition

Objective: To improve gradually the nutrition status of the population as part of a coordinated effort to raise the health level of the country.

Probable duration: 1965-

Assistance provided: 1 medical nutritionist.

Work done: A National Nutrition Division was created and planned its work program, which includes the training of personnel. An agreement with FAO, UNESCO, and UNICEF was in preparation. The nutrition laboratory of the national public health laboratory was reorganized.

WHO/UN-TA

CUBA-6100, School of Public Health

Objective: To train professional, intermediate, and auxiliary public health personnel to meet the growing needs of the country's health services.

Probable duration: 1966-1968.

Assistance provided: Advisory services by Headquarters and Zone II Office professional personnel.

Work done: Plans were initiated at the Carlos J. Finlay School of Public Health to organize and establish the administration of teaching programs in epidemiology, maternal and child health, and hospital administration.

CUBA-6101, Training Center at Marianao

Objective: To expand the activities of the demonstration and training area at Marianao, where practical instruction is given to supplement the various preparatory courses for public health personnel.

Probable duration: 1966-1968.

Assistance provided: Advisory services by personnel of Headquarters and of other projects in the country, especially advisers assigned to Cuba-3100.

Work done: The regional service at Marianao and its associated clinics were entirely reorganized to provide full coverage for the population of the area, amounting to 356,000 inhabitants. This service continued to develop its training functions and provided practical training to 400 students from schools of public health, medicine, nursing, and other disciplines.

The following courses were held in connection with this project: of orientation in public health, for 40 students of the School of Public Health; in nursing administration and education (11 months), for 29 professionals; to train

health workers (6 months), for 45 students; and in practical orientation in nursing (11 months) for 129 students of nursing from 3 hospitals in the Marianao area. Inservice training for nurse auxiliaries was also given to 38 employees of institutions for children in the same area.

UNICEF

CUBA-6200, Medical Education

Objective: To strengthen medical education by increasing reference material in the medical library.

Probable duration: 1965-

Assistance provided: 1-year subscriptions to 18 medical journals and 88 reference books were furnished to the library of the School of Medicine of the University of Havana.

PAHO/RB

CUBA-6300 (-4), Nursing Education

Objective: To strengthen the schools of nursing of the country; and to prepare nursing instructors.

Probable duration: 1961-1969.

Assistance provided: Advisory services by the 2 nurses assigned to project Cuba-3100 and by personnel from Headquarters and project AMRO-3202.

Work done: Eight schools of general nursing graduated 465 students. A postbasic course in nursing education and administration was initiated in September with 32 students. The Government requested a short-term consultant to evaluate the nursing education program and the Pan American Sanitary Bureau initiated steps to meet the request.

CUBA-6400, Sanitary Engineering Education

Objective: To improve the technical training of professional and auxiliary personnel employed in the field of sanitary engineering; and to undertake research activities.

Probable duration: 1966-1970.

Assistance provided: Advisory services by professional personnel of Headquarters, of project AMRO-6400, of other projects in the country and of projects of other countries in Zone II.

Work done: An agreement was signed between the Government and PAHO on the implementation of activities under the project. One short intensive course on the treatment of domestic and industrial liquid waste was prepared and held, at the Carlos J. Finlay School of Public Health of the Ministry of Public Health, from 19 September to 1 October, for 40 students.

DOMINICAN REPUBLIC-0200 (-2), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1970, year in which the consolidation phase is expected to be completed.

VIII. PROJECT ACTIVITIES

Assistance provided: 1 malariologist-coordinator of the campaign, 1 sanitary engineer, 1 entomological assistant, 1 administrative methods officer, 2 sanitation inspectors, and advisory services by personnel of project AMRO-0200; antimalaria drugs; and one 1½-month fellowship to study malaria, in El Salvador and Honduras.

Work done: 288,765 house-spraying were carried out. Of the 505,130 blood smears examined, 429 were positive.

A team of United States Public Health Service and PASB Headquarters personnel carried out an evaluation of the program in January and recommended reduction of the area covered by spraying. Intensive vigilance was kept over areas where spraying was suspended. Another evaluation was carried out in October and it revealed that laboratory facilities were insufficient for the increased number of blood smears being collected as well as that insufficient attention had been accorded to some known foci of persistent transmission. Most of the cases discovered during the year were in definite foci. Enlargement of the laboratory facilities and more intensive attack on foci was recommended, including spraying of some localities which, although above the 500-meter altitude which has been used to delimit the malarious area, are nevertheless located near active foci.

Personnel of AMRO-0200 provided advisory services on the improvement of laboratory services.

PAHO/SMF

UNICEF

DOMINICAN REPUBLIC-0400, Tuberculosis Control

Objective: To organize in the Province of San Cristóbal a demonstration area to obtain epidemiological information, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1963-1967.

Assistance provided: 1 short-term consultant and advisory services by the Country Representative and personnel assigned to project AMRO-0400.

Work done: The San Cristóbal pilot project, which was carried out in the Municipalities of San Cristóbal and Villa Altigracia, in the Province of San Cristóbal, was completed in July. Of 15,287 persons of all age groups tested with PPD, 3,899 (25.5%) indicated positivity to PPD while 11,388 (74.5%) were negative; among the urban population, 69% were susceptible. On the other hand, studies carried out among urban school children in San Cristóbal and Altigracia indicated negative reactions to tuberculin of the order of 77% and 79%, respectively. Investigation of the prevalence of the disease revealed lesions among adults in urban areas of the order of 0.88% and of 0.31% among rural adults.

The results of the San Cristóbal survey, combined with other data obtained among school children in the cities of Santo Domingo and Barahona, all with a high percentage of negative reactions to the test, indicate that it would be useful to orient antituberculosis activities toward BCG vaccination, preferably. On the basis of

such findings, a 3-year program was formulated for the vaccination of the infant population, from newborn to school-age children, in gradually increasing numbers, as the necessary resources are organized.

The initial urban phase of a program initiated in November in the Municipality of San Juan de la Maguana (108,100 inhabitants) permitted the immunization of 17,500 persons with BCG. For the first time, BCG immunization is being applied in the country, without prior tuberculin testing, in the population under 15 years of age. This program, which will be extended throughout the entire province, will be supplemented with X-ray examination of tuberculin-positive children.

With a view to adequate execution of the programs, the Tuberculosis Division was strengthened, and a nurse was designated to control supplies of biological and therapeutic products and to orient and supervise the programs and data records pertaining to regular implementation of such programs.

WHO/UN-TA

UNICEF

DOMINICAN REPUBLIC-2200 (-15), Water Supplies

Objective: To organize a central water supply and sewerage authority; to design waterworks and sewerage systems; and to obtain from international credit agencies loans to build the systems.

Probable duration: 1962-1969.

Assistance provided: 1 sanitary engineer and advisory services by the sanitary engineer assigned to project AMRO-2102.

Work done: The National Water Supply and Sewerage Institute (INAPA)—the national water authority—completed 18 new rural water supply works except for pumps, which were on order, and put them in service with provisional pumping equipment to supply water to about 25,000 persons at a cost of US\$670,000. Routine maintenance service was provided for some 250 windmills which furnish water to more than 25,000 persons; major overhaul of 75 others was pending receipt of parts from abroad. Community organization for local management of existing waterworks was handicapped by lack of organizers, requiring those available to devote their efforts almost entirely to areas of new construction; in several communities, however, committees were managing their own water supply systems. The national survey of new waterworks was completed, and preliminary studies and planning of projects was in process.

Preparations were completed for a countrywide program in rural areas and assistance was requested from the Inter-American Development Bank. PASB assistance was requested in connection with studies which were underway for a reorganization of INAPA.

PAHO/RB

DOMINICAN REPUBLIC-3100 (-4), Health Services

Objective: To improve the organization of health services at the national and regional levels; and to expand the local

services in order to provide integrated services to the entire country.

Probable duration: 1953-1967.

Assistance provided: 1 medical adviser (the PAHO/WHO Country Representative), 1 public health nurse, 1 statistician, 1 adviser in administrative methods and procedures, 4 short-term consultants, and advisory services by the nurse assigned to project AMRO-3202; and the following fellowships:

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
1	Environmental sanitation (hospital construction)	Peru	1½
1	Ditto (sanitary engineering)	Mexico	10½
1	Nursing services	Brazil	10
3	Public health administration	Mexico	10½
1	Ditto (health education)	Puerto Rico	12
1	Public health dentistry	Brazil	11
2	Public health planning	Chile	3½
2	Rural water supply	Costa Rica, Peru, Venezuela	1½
1	Sanitary engineering	Guatemala	11
1	Ditto (administration of water supply and sewerage systems)	Colombia	2½
1	Ditto (ground water development)	Mexico	¾
1	Veterinary public health	Brazil	11
1	Water supply systems	Mexico	½

Work done: The planning unit of the National Planning and Coordination Board and the National Health Council were reorganized. Preliminary steps were taken to obtain the basic information needed for preparation of the 10-year health plan. At the central level, progress was made in the drafting of rules and the definition of the functions of almost all technical divisions and the administrative divisions. The concepts of integrated services were specified, and the regionalization of the country into 2 health areas was begun. Important advances were made also in the Statistics Division following the establishment of relations with the National Department of Civil Registry Statistics and the Central Electoral Board; this coordination led to the prompt recording of complete vital and health statistics.

A new nursing school began operating in Santiago. This new school, added to the increased enrollment at the national nursing school and in nursing auxiliary courses, opens new vistas for this discipline.

In addition to a reorganization of the environmental sanitation division, the urban program was expanded, 5 local environmental sanitation units were organized, and the rural sanitation program was defined. The number of health educators in the country was increased to 10.

The technical and administrative organization of 3 hospitals was improved, and the organization of nursing services in hospitals and other health establishments was continued.

Training activities under this project included the following courses: 1 in hospital statistics (2 weeks), for 33 officials of the Ministry of Health and Social Welfare; 1 in administrative functions (7 days), for 42 Ministry employees with a secondary education; 4 in hospital administration (6 weeks each), for 46 hospital directors; 1 in auxiliary

nursing at outlying clinics (3 months), for 6 students; 1 (6 months) for 43 lay midwives; and 13 (30 days each) for a total of 375 food handlers. In sanitation, 66 (1-week each) courses were conducted, as follows: 4 in rural sanitation programs at health centers, for 40 employees; 2 in health inspection, for 20 employees; and 4 in urban sanitation, for 40 employees.

Seminars held during the year included: several in civil records, attended by 100 employees from 6 departments; 1 in nursing, attended by 40 professionals; 1 in vital statistics, for 27 medical directors of health centers; and another on the same subject, for health personnel.

PAHO/RB, WHO/RB, WHO/UN-TA UNICEF

DOMINICAN REPUBLIC-4800, Medical Care Services

Objective: To improve the management of existing medical care resources with a view to obtaining the maximum use of these investments.

Probable duration: 1966-

Assistance provided: 2 short-term consultants.

Work done: An analysis was made of the general problems of the hospital system in the country, and the internal administrative structure of some hospitals was revised.

PAHO/RB

DOMINICAN REPUBLIC-6200 (-14), Medical Education

Objective: To strengthen medical education with emphasis on the teaching of preventive medicine.

Probable duration: 1962-1967. This project was not active in 1966 because of local conditions.

DOMINICAN REPUBLIC-6300 (-3), Nursing Education

Objective: To strengthen the National School of Nursing by preparing nurses for the faculty, improving the physical facilities and areas for field practice, and expanding the curriculum to include the teaching of public health nursing and courses in teaching and supervision.

Probable duration: 1958-1968.

Assistance provided: 1 nurse educator, 1 short-term consultant, and advisory services by the nurse assigned to project AMRO-3202; equipment and supplies; and four 1-month fellowships to study nursing education in Mexico.

Work done: The National School of Nursing, in Santo Domingo, graduated 9 students, of which 5 were engaged by the Ministry of Health and Social Welfare and 4 by the Dominican Institute of Social Service. The School received 40 new applications but postponed registration until January 1967; enrollment was composed of 17 third-year students and 39 second-year students.

VIII. PROJECT ACTIVITIES

Ten students and 30 practical nurses finished a 6-month nursing-auxiliary course in Santo Domingo; the 30 formerly practical nurses returned to the health services and the new nursing auxiliaries were scheduled for service in the hospital at Higuey, almost ready to be put in service. A second 6-month course was begun on 2 November with 30 students and 31 practical nurses from the health services. In Santiago de los Caballeros, 11 students finished an 8-month nursing-auxiliary course; some were scheduled for assignment to peripheral clinics, soon to be inaugurated, and the others to posts that will become effective within the health services on 1 January 1967.

In September a new School of Nursing began to function as part of the Madre Maestra Catholic University in Santiago. Out of 30 applications, 21 candidates to the 4-year course were approved for the first year of studies, compulsory for all the University's students. The AMRO-3202 nurse and 1 of the short-term consultants assigned to Mexico-6300 assisted in the early stages of planning for this collegiate program in nursing education.

WHO/RB

DOMINICAN REPUBLIC-6600, Dental Education

Objective: To prepare and establish at the School of Dentistry a new curriculum including the preventive and social aspects of dentistry.

Duration: 1966.

Assistance provided: 1 short-term consultant; and equipment and supplies.

Work done: The new curriculum and teaching materials were prepared; a course on dental pedagogy was conducted for the faculty; and a specific plan for coordination of the work of the clinics and new patient registration forms were designed.

WHO/RB

ECUADOR-0200 (-14), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 2 medical officers, 1 sanitary engineer, and 3 sanitation inspectors; antimalaria drugs and some equipment and other supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Malaria	El Salvador, Mexico, Venezuela	5½
1	Public health administration (malaria)	Brazil	11

Work done: Financial difficulties reduced the operations of this program. House-spraying carried out from January to November were limited to 208,669, covering only 47.1% and 12% for the 1st and 2nd semesters respectively.

Evaluation was carried out mainly through passive

case-detection although the reduced number of evaluators available to visit and resupply detection posts resulted in a reduction of the output of the network. The yield from both active and passive evaluations was 311,821 blood smears; of the 4,976 positive smears, 406 were *Plasmodium falciparum* infections.

One region of the area in consolidation phase suffered an outbreak of *P. falciparum* which attained considerable size because of its late discovery due to the reduced evaluation operations. The remaining part of the area seemed to have maintained itself free of malaria. The "difficult" areas in attack phase increased in positivity owing to lack of effective attack measures, while the areas with lower transmission levels apparently continued without increases, although spraying was suspended and evaluation was insufficient.

The Government continued negotiations in an effort to obtain adequate funding for a 3-year plan of attack.

PAHO/SMF, WHO/UN-TA

AID, UNICEF

ECUADOR-0400, Tuberculosis Control

Objective: To develop in the experimental area of the Province of Manabí a tuberculosis control program closely coordinated with the integrated health program of the province.

Probable duration: 1966-1968.

Assistance provided: 1 short-term consultant and advisory services by staff of the Zone IV Office and personnel assigned to projects AMRO-0400 and -0404.

Work done: The National Health Service and the President of the Ecuadorean Antituberculosis League (LEA), following suggestions offered by the consultant, kept in contact for the purpose of discussing the establishment of a mechanism which would permit greater coordination of the program activities of both institutions. As a result of their discussions a Technical Committee for Development of the Antituberculosis Campaign in Ecuador was established, composed of the National Director of Health and the tuberculosis specialist of the National Health Department (chairman), the chairman of the Executive Committee of LEA, one of the directors of the LEA dispensaries in Guayaquil or the director of the Alfredo J. Valenzuela Hospital of LEA, and the PAHO/WHO Country Representative.

Plans were initiated for a program to be implemented in the Province of Manabí, in which all tuberculosis control work would be coordinated and carried out by the Ecuadorean Antituberculosis League and the National Health Service. In cooperation with personnel of LEA and of the Integrated Health Program of the Province of Manabí (PISMA), the first steps were taken to define the local tuberculosis problem, analyze resources, and train personnel for implementation of the control program.

A refresher course in tuberculosis control programs, in which the National Service, LEA, and PASB collaborated, was conducted for 18 physicians and 16 nurses of the coastal area, LEA, and PISMA.

PAHO/RB

ECUADOR-0500 (-18), Leprosy Control

Objective: To organize a leprosy control program in a demonstration area, in order to develop work methods that may be carried out through regular health services.

Probable duration: 1964-1967.

Assistance provided: Advisory services by personnel assigned to projects AMRO-0500, -0504, and -0508.

Work done: Activities of the leprosy control program were continued throughout the country and consolidated in 4 regional services, and, in the Provinces of Guayas and Los Ríos, progress was made in the application of the administrative methods recommended at the Cuernavaca Seminar in 1963. This program, which developed very auspiciously in 1966, continued using methods that permit the achievement of its objectives in accordance with the resources and facilities available in the country. Community participation in the program is used in periodic surveillance of cases, in the regular distribution of drugs for treatment, and in guaranteeing that the patients actually take the medication in the doses prescribed and with the frequency recommended by physicians.

The program encountered serious economic and administrative difficulties. The reduction of its budget and the funds allocated to it resulted in a reduction of its auxiliary personnel and limitations of the quota of fuel allocated for transportation. This, however, was practically offset because the Leprosy Service maintained good coordination with various health services, particularly those dealing with malaria and smallpox, the inspectors of which reported possible leprosy cases to the Service. Furthermore, during the periods of greatest financial difficulties, the cooperation provided by municipal and private entities enabled the Service to make adequate use of its auxiliary personnel in the field.

A special study was carried out in the eastern Amazon region—in the Provinces of Morona and Santiago—with a view to obtaining information on the frequency of leprosy among the Indian population. The study did not reveal leprosy cases, but leishmaniasis cases were detected.

From January to September 82,764 persons were examined throughout the country (55.1% of the target established for the year) and the 149 new cases detected (74.5% of the estimated target for the year) had the following forms: lepromatous, 61; tuberculoid, 35; indeterminate, 48; and dimorphous, 5. Of the new cases discovered, 45% were detected by means of examinations of contacts, 40% by investigation of notifications of possible leprosy cases, 7% by large-scale examinations of the population, 5.5% at dermatology clinics, and 3% by other means. Likewise, 1,812 patients were examined for purposes of clinical surveillance and evaluation of the results of treatment. This figure represents 60.4% of the annual target established for this type of activities.

During the first 3 quarters of the year, 1,004 bacilloscopies were made (50.2% of the annual target), 822 contacts of new cases were examined, and 2,506 old contacts were re-examined (62.7% of the annual target).

Health education activities were continued by means of interviews with community leaders, lectures for the

benefit of population groups, and the teaching of patients and contacts. The cooperation of newspapers and other periodical publications and radio and television facilities were obtained in order to disseminate present-day concepts pertaining to leprosy and its control.

In the field of physical rehabilitation, in addition to the training of personnel assigned to the program in the specific techniques of leprosy control, the following activities were outstanding: (a) a survey was carried out in order to determine the frequency and type of disability incurred by leprosy cases in the Provinces of Azuay, Bolívar, Cañar, Guayas, and Los Ríos; (b) a small Physiotherapy Center functioned in the Guayaquil Dispensary, providing care for patients in that area; and (c) educational activities were carried out, principally through visits of auxiliary personnel to foci, in order to prevent disabilities caused by leprosy.

Auxiliary personnel was trained for service in the 5 provinces mentioned above, with a view to preventing incapacitation; and lectures on leprosy were given to medical students at the University of Guayaquil and leprology classes to physicians and nurses of the Integrated Health Plan of the Province of Manabí. Also, the first postgraduate course in leprology was organized in cooperation with the Medical School, the Dermatology Society, the National Leprosy Service, and the Pan American Sanitary Bureau.

In 1966 the system for registration of statistical data related to the leprosy control program was re-evaluated in order to determine its practical value. The 2 years of experience since the system was introduced confirmed its usefulness and advantages.

UNICEF

ECUADOR-0900 (-52), Plague Control

Objective: To develop an effective plague control program in the endemic areas of the country.

Probable duration: 1965-1970.

Assistance provided: 1 short-term consultant and advisory services by Headquarters personnel; and one 2½-month fellowship to study laboratory services in Denmark, England, France, and Italy.

Work done: A full-time director was assigned to the program in April, and in June work was begun on the preparation of standards and models that will provide the basis for the formulation of operational plans for the various functional services which are within the program.

A meeting was held between the physicians in charge of the plague program in Ecuador and their counterparts in Peru. The Peruvian physicians visited Cuayaquil and the area of Ecuador which borders on Peru and held conversations with the personnel in charge of organizing the National Seminar on Plague, with a view to analyzing the respective activities of both countries in the border area and establishing the bases for joint work.

Although the financial conditions of the plague control program in Ecuador were not favorable, field operations were carried out with relative regularity.

VIII. PROJECT ACTIVITIES

In 1966 the incidence of plague decreased in relation to that of the 5 previous years. The epidemic outbreak which began in the Province of Loja in 1965 (230 cases) decreased gradually during 1966 (171 cases). In the Province of Manabí, where during the 4 previous years the number of observed cases varied from a maximum of 241 to a minimum of 108 per year, 18 cases had been registered as of the end of October. Cases were also reported in the Provinces of El Oro, Chimborazo, and Cañar.

The following work was performed by the National Plague Service during the January-October period: 517,165 rats were exterminated; 312,832 houses, 380,246 rooms, and 45,626 m² of fences were treated with the 1080 preparation; 134,656 houses, 58,454 roofs, 40,626 basements, and 1,519,420 caves were treated with cyanogas; 325,921 houses and rooms, 27,692 patios, 841,598 items of wearing apparel and beds, 29,850 packages of merchandise and 5,516 persons were disinfested. Measures were also taken to exterminate rats in 55,268 patios, and 696,169 house visits were made for that purpose.

WHO/UN-TA

ECUADOR-2200 (-21), Water Supplies

Objective: To expand the water supply system of Quito and to plan for the construction of water supply systems for other cities.

Probable duration: 1961-

Assistance provided: 1 short-term consultant and advisory services by the engineering staff of the Zone Office IV and of other projects in Ecuador.

Work done: The Ecuadorean Institute of Sanitary Works completed 9 systems which will supply water to a population of 86,000 persons; it also had under construction 12 systems to serve another 182,000 persons and under study plans for 18 other systems to supply water for 174,000 more persons. The Institute was also constructing sewer systems for 11 cities with an aggregate population of 91,000. Financing of these works is being made with the assistance of a US\$5.5 million loan from the Inter-American Development Bank. At year's end about 40% of the total program had been done.

The Quito water supply authority obtained a US\$12 million loan from IDB toward financing its US\$17 million Municipal Water Supply Project.

The construction of the new water supply system in Guayaquil continued to progress satisfactorily; the pipes installed added up to more than 100 kms.

PAHO/CWSF

ECUADOR-3100 (-4), National Health Services

Objective: To develop and integrate the public health service at the national and local levels, and especially the services of the Province of Manabí.

Probable duration: 1953-1967.

Assistance provided: 1 chief medical adviser (the PAHO/WHO Country Representative), 1 medical officer, 1 sanitary engineer, 1 public health nurse, 1 sanitation inspector, and advisory services by the nurse assigned to project AMRO-

3204; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics		
1	Laboratory services (smallpox)	Chile	3
1	Ditto (virology)	Brazil	¼
1	Medical pedagogy (biochemistry)	Colombia	12
10	Nursing services	Brazil	11
1	Public health administration	Peru	¼
1	Ditto	Brazil	11
1	Ditto	Mexico	10½
1	Ditto	Ditto	11
1	Ditto (epidemiology)	Brazil	11
1	Ditto (hospital administration)	Venezuela	12
1	Public health nursing	Colombia	12
1	Ditto (administration and supervision)	Puerto Rico	11½
1	Radiological health	United States of America	2
1	Rehabilitation (orthopedic appliances)	Brazil	4
1	Sanitary engineering	Guatemala	11
1	Teaching of pharmacy (drug control)	Brazil	3

Work done: Planning Offices were installed in the Ministry of Social Welfare and Labor and the National Department of Health, in fulfillment of goals for the reorganization of the public health sector. The positions of Under Secretary of Public Health and Director General of Health, which had been vacant for nearly 3 years, were filled. A National Division of Medical Care was established at the central level with the following full-time staff: 1 chief medical officer, 1 architect, 1 public health nurse, and secretarial personnel.

An early result of the above-mentioned reorganization was the promulgation of an Executive Decree for the organization and conduct of a general public health service program and for the administration of a project in the parish of Santo Domingo, where several land settlement and economic and social development programs are in progress. A law was enacted to improve the salaries of medical personnel in gradual increases over a period of 5 years.

The recently established National Division of Epidemiology prepared, with PASB technical assistance, a plan of operations for the conduct of a communicable disease control program for the country. The plan covers the organization of the system and provides annual targets for the 4 years of the program and a calendar of operations.

In Guayaquil the facilities of Health Center No. 4 were expanded to offer increased services. In the city's suburbs, with a total population of 280,000, three community development units were built with health centers each capable of serving the health needs of up to 50,000 persons. This enterprise had the collaboration of the municipal authorities and the Archdiocese, as well as a contribution of S/6 million provided by German Catholics.

In the Province of Guayas rabies caused 3 deaths; 1,800 persons were bitten, 142 by dogs found to be infected; 1,331 bitten persons began treatment; 12,751 dogs were destroyed during the year.

The regionalization of services was consolidated and a

professional was appointed to prepare a health plan for the Coastal Health Region, which includes several of the more highly developed provinces of Ecuador. The headships of 5 technical and policy-setting divisions of the planning office and the coastal health regions were filled by a competition among candidates for the positions.

Field activities are performed by 34 health centers. During the first 9 months of the year these centers controlled 11,998 expectant mothers, 4,678 of them from before the 5th month of pregnancy. Records for that period show 28,714 visits, or approximately 2.5 medical visits per pregnant woman. Child care units registered 9,617 children, thus raising the total to 16,459. Children's calls totaled 38,754: 26,358 for sick and 12,396 for well children; at the same time, 21,348 preschool-age children, 12,082 of them newly registered, were seen in 63,235 visits; of these, 44,236 were for illness and 19,002 for health control purposes.

The immunization program applied the following vaccination doses: 77,082 smallpox, 68,258 DPT, 28,978 poliomyelitis, 42,687 typhus, 38,057 mixed, 4,877 whooping cough, and 53,248 measles.

In the field of environmental sanitation, work was continued in the setting of standards and carrying out of food control and community sanitation activities that included the drilling of wells and construction of latrines.

In the demonstration area of the Province of Manabí, targets and accomplishments during the year were:

Activities and norms	Targets (1966)	Percent accomplished
Project coverage (46.8% of the population)	323,976	70.8
Medical visits (0.5 per inhabitant)	161,988	19.4
Hospitalization (5.6% of the population)	16,198	87.6
Control of expectant mothers (50% of the total)	5,921	40.9
Prenatal and postnatal visits (3 prenatal to 1 postnatal)	23,687	27.8
Nurse home visits to expectant mothers (2 visits)	2,719	102.1
Delivery care (50% of total)	8,994	12.9
Control of 60% of infants under 1 year	3,510	84.5
Visits by infants under 1 year (7 per year)	24,336	41.4
Nurse home visits to infants (2 per year)	7,712	54.2
Control of preschool-age children (50%)	12,807	40.1
Visits by preschool-age children (2 per year)	25,634	60.7
Nurse home visits to preschool-age children	14,147	74.3
Control of school children (0.5 visits per year)	8,750	88.1
Immunizations against diphtheria, tetanus, and whooping cough (50% of children under 6 years)	14,607	9.7
Measles vaccination (children)	7,000	70.9
Well construction	25	116.0
Protection of existing wells	1,300	28.9
Latrine construction	2,000	85.3
Garbage collection (metric tons)	98	141.8
Installation of public trash receptacles	110	171.8
Improvement of public establishments	435	83.9
Health control of food handlers	1,184	242.1
Improvement of public places	110	120.0

Training activities under this project were as follows: 1 refresher course in tuberculosis (6 days), for 34 students; 1 course for municipal health inspectors (3 weeks), for 25 students; 1 in laboratory assistance (6 months), for 18 students; and 2 courses in auxiliary nursing (average 8 months each), for 85 students. Also, 10 students received nursing auxiliary training, during 6 months, and a 7-day Seminar in Medical Education was held for 25 participants.

PAHO/RB, WHO/RB, WHO/UN-TA UNICEF

ECUADOR-3101 (-19), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Enteric diseases (bacteriology)	United States of America	¾
1	Laboratory services (vaccine preparation)	Brazil	3
1	Medical librarianship	Colombia	5¼
1	Public health planning	Chile	3½

PAHO/RB PAHO/FEFS

ECUADOR-3102 (-22), Rural Medical Services

Objective: To promote the economic and social development and the health of the rural populations of the Andean Highlands so as to facilitate their integration into the national community.

Probable duration: 1956-1970.

Assistance provided: 1 medical specialist in public health.

Work done: This health and sanitation program (combined with the so-called United Nations Andean Mission) covered 162 communities with a total rural population of 74,280, or 80% of the intended area and population to be serviced during the year. The equipment and supplies contributed by UNICEF went to 25 health posts, 2 subcenters, and 7 mobile units. Two health center-hospitals were equipped with a Swiss grant and 2 opened for service to 42,000 persons, in the communities of Tabacundo and Cañar. The targets and principal accomplishments were as follows:

Activities and norms	Targets (1966) (year)	Percent accomplished (first 10 months)
Project coverage, in communities	195	83.2
Medical calls by mobile units in biweekly visits:		
Adults	24,000	66.9
Children	11,799	76.1
First aid and treatment by nurses:		
Adults	1,000	179.9
Children	1,500	115.2
First aid and symptomatic treatment by nursing auxiliaries:		
Adults	14,000	90.3
Children	11,700	80.3
Dental care:		
Extractions	10,000	61.1
Cures	3,000	50.4
Three calls by 50% of infants under 1 year:		
New cases	1,509	63.2
Repeat calls	3,018	18.8

VIII. PROJECT ACTIVITIES

<i>Activities and norms</i>	<i>Targets (1966) (year)</i>	<i>Percent accomplished (first 10 months)</i>
Two calls by 40% of preschool-age children:		
New cases	4,254	22.4
Repeat calls	4,254	13.3
Two calls by 70% of school-age children:		
New cases	14,809	42.3
Repeat calls	14,809	16.9
Three calls by 30% of expectant mothers:		
New cases	1,328	92.9
Repeat calls	2,656	44.2
One call by 50% of new mothers (postpartum control)	2,214	33.3
Educational talks by nurses	5,000	40.0
Interviews by nurses	13,000	72.1
Demonstrations by nurses	2,500	51.5
Home visits by nurses	12,000	61.3
Interviews by nursing auxiliaries	15,000	105.6
Demonstrations by nursing auxiliaries	6,000	103.0
Home visits by nursing auxiliaries	45,000	52.5
Dental calls (prophylaxis)	2,000	46.1
Smallpox vaccinations:		
Primovaccination of 80% of infants under 1 year	2,414	86.9
Revaccination of 20% of children over 1 year	13,570	44.2
DPT vaccinations:		
3 doses to 50% of infants under 1 year	1,509	89.4
Booster shots to 30% of preschool-age children	3,180	37.7
Community water supply (construction of systems)	62	29.0
Latrine construction	446	53.8
Community shower units	89	16.8
Community laundries	89	12.3

Personnel education and training included the following courses: 2 in the rudiments of public health (average of 15 days each), for 42 teachers; 1 in auxiliary nursing (1 year), for 26 students; 1 refresher course (1 month), for 40 nursing auxiliaries. Also the following seminars were conducted: planning for the control of communicable diseases; water supply and sewage disposal (1 week), for 14 health inspectors; engineering and architecture (7 days), for 10 participants; and on the working program of the Andean Mission (1 week), for 6 nurses and 4 architects.

PAHO/RB FAO, ILO, UN, UNESCO, UNICEF

ECUADOR-3301 (-11), National Institute of Health

Objective: To promote the development of the various sections of the National Institute of Health.

Probable duration: 1952-

Assistance provided: Advisory services by Headquarters and Zone IV Office staff; and one 3-month fellowship for study of laboratory services (virology), in the United States of America.

Work done: The Institute prepared a draft of a law on sanitary control of the importation, preparation, and advertising of medicines, cosmetics and processed food-stuffs for human consumption. It also prepared the draft regulations of the above-mentioned law. Both texts were approved as laws of the Republic.

The Department of Biological Products, which was established on 14 July, completed the installation of equipment provided for its organization, which enabled it to initiate regular production of smallpox, rabies, whooping cough, diphtheria, and typhoid vaccines, as well as other types of antigens. The BCC Section also received equipment and was installing it. In order to meet the needs of provincial laboratories the Institute provides laboratory-assistant courses on a regular basis.

The appropriate Section of the Institute participated in the program for evaluation of serological techniques which is being implemented in the Communicable Disease Center (CDC) of the United States Public Health Service and was receiving, on a regular basis, sera sent by the CDC laboratories.

PAHO/RB

ECUADOR-4200 (-53), Nutrition

Objective: To intensify applied nutrition research and personnel training at the National Institute of Nutrition.

Probable duration: 1950-1967.

Assistance provided: Advisory services by the medical nutritionist assigned to project AMRO-4204.

Work done: The constitution of the National Nutrition Committee was signed by the President of the Republic and work was begun on the preparation of a National Food and Nutrition Plan.

The National Institute of Nutrition, with the collaboration of the adviser, provided training as follows: 144 hours to 15 students of Quito's Catholic University's course for social workers; 60 hours to 30 superintendents of child-care centers; and 80 hours to 155 mothers in Quito. Training in nutrition was also given to industry food supervisors and community leaders. The Institute carried out food consumption surveys in 1 community, 2 hospitals, and 1 workers' canteen. The adviser also participated in the planning of hospital food services, the preparation of a salt iodization bill, and the setting up of a national food and nutrition plan.

This project absorbed the one formerly called Ecuador-4201, which was limited to the National Institute of Nutrition.

ECUADOR-4202, Goiter Prevention

Objective: To test the use of iodized oil as a means of preventing endemic goiter, with special reference to effectiveness, feasibility, and action on growth and development.

Probable duration: 1966-1967.

Assistance provided: Advisory services by the medical nutritionist assigned to project AMRO-4204; a grant for local costs; and equipment and supplies.

Work done: A preliminary census and nutritional and anthropological surveys were carried out. Injections of iodized oil were administered to children in the community of Tocachi, where a clinic was established and a phy-

sician was assigned to initiate longitudinal studies of bone maturation.

PAHO/RB

ECUADOR-4203, Nutrition (Portoviejo)

Objective: To conduct a study on the prevalence of protein-calorie malnutrition in Portoviejo, Manabí; and to establish a nutrition rehabilitation center to reduce and prevent protein-calorie malnutrition.

Probable duration: 1966-1967.

Assistance provided: Advisory services by the medical nutritionist assigned to project AMRO-4204; and a grant for local costs.

Work done: A nutrition study was carried out in 4,817 preschool children. Training in nutrition rehabilitation was provided to 45 students of the school of nursing auxiliaries. Collaboration was obtained from the local Red Cross which will assist in establishing the Portoviejo Nutrition Rehabilitation Center.

PAHO/OF

Williams-Waterman Fund

ECUADOR-4204, Endemic Goiter and Mental Retardation

Objective: To determine the effectiveness of iodized oil injected intramuscularly for the prevention of endemic goiter and cretinism in the Andean Region of Latin America.

Probable duration: 1966-1968.

Assistance provided: A grant for local costs.

Work done: Inhabitants of La Esperanza and Toca-chi—2 isolated communities in the Province of Cayambe—were given clinical examinations. In one of the communities, 80% of the population examined received the injection, while inhabitants of the other were used as a control group. Periodic examinations of the population in both communities were being made by a clinician.

Mental Association for Retarded Children, MIT

PAHO/OF

ECUADOR-6200, Medical Education

Objective: To strengthen medical education by improving the training of medical-faculty members.

Probable duration: 1965-

Assistance provided: Advisory services by Headquarters personnel.

Work done: Discussions were held with the pertinent authorities of the 3 medical schools, for the purpose of planning a survey to assess their teaching programs in preventive medicine.

ECUADOR-6300 (-16), Nursing Education

Objective: To strengthen teaching at the National School of Nursing, in Quito, and in the School of Nursing of the

University of Guayas, in Guayaquil, by preparing instructors and broadening the curriculum with regard to public health nursing and principles of teaching and supervision.

Probable duration: 1957-1967.

Assistance provided: 1 nurse educator and advisory services by the nurse assigned to project AMRO-3204; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Nursing education teaching	Colombia	12
1	Ditto	Puerto Rico	11½
1	Ditto (public health nursing)	Colombia	11½

Work done: The National School of Nursing, in the Central University in Quito, enrolled 29 first-year students (total enrollment, 87). This school began using the La Magdalena health center for the public health aspects of its student training.

The School of Nursing of the University of Guayas carried out an intensive program of public information and raised its total enrollment to 52, with 35 new first-year students.

PAHO/RB, WHO/RB

ECUADOR-6400, Sanitary Engineering Education

Objective: To improve the quality of training in sanitary engineering in regular engineering courses; and to develop a program of short courses aimed at promoting continuing education in this field.

Probable duration: 1964-1967.

Assistance provided: 1 short-term consultant and advisory services by personnel of Headquarters, the Zone IV Office, and of projects in the country; and grants.

Work done: 1 intensive course on planning methods and the control of sanitary engineering projects was held, at the School of Engineering of the Central University at Quito, from 22 August to 2 September, for 18 students. The first steps were taken towards reaching an agreement on the holding of similar courses at the University of Guayaquil.

PAHO/SFHP, PAHO/CWSF, WHO/RB

EL SALVADOR-0200 (-2), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1955-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 2 medical officers, 1 sanitary engineer, and 3 sanitation inspectors; antimalaria drugs and other supplies; and a limited amount of equipment.

Work done: The financial difficulties faced by this program in 1965 limited activities to such a point that malaria incidence rose significantly during 1966.

From January through November, 251,030 house-sprays were performed. The collective treatment program which was reinitiated in the 3 western zones of the Pacific Coast had to be interrupted in August in order to substitute a similar program in the 2 eastern coastal

VIII. PROJECT ACTIVITIES

zones in which no attack measures had been in force and incidence had sharply risen. Of the 477,954 blood smears examined during the same period, 59,105 (12.4%) were positive: 9,016 for *Plasmodium falciparum*, and 50,089 for *P. vivax*.

An evaluation and revision of the 3-year plan of operations was carried out in November by a joint team of USPHS-PASB personnel, and the loan agreement (negotiations began in 1965) between the Government of El Salvador and the United States Agency for International Development was signed.

PAHO/SMF, WHO/RB

AID, UNICEF

EL SALVADOR-0400 (-1), Tuberculosis Control

Objective: To develop a tuberculosis control program which, at first limited to the Department of Usulután, will later be expanded to cover the whole country.

Probable duration: 1964-1968.

Assistance provided: Advisory services by personnel assigned to projects AMRO-0400 and -0403.

Work done: The National Health Department prepared manuals of standards, including chapters on tuberculosis. Also, efforts to establish more effective control of cases and to regularize the administration of drugs were intensified.

From January to September, the following activities were carried out: 47,197 tuberculin tests (96% of the annual target), 35,676 BCG vaccinations (89% of the annual target), and 11,897 photofluorographic examinations (86% of the annual target); 100% of the cases were under treatment: 405 persons. By the end of September the pilot project had achieved 71% of the goals established for its first year.

BCG is administered without any previous tuberculin test at all health centers, where the treatment and followup of cases are gradually being integrated.

UNICEF

EL SALVADOR-2200 (-14), Water Supplies

Objective: To prepare short- and long-range plans to provide the entire country with water supply and sewerage services, including the designing of the systems and the preparation of construction plans; to expand the water supply and sewerage systems in the capital; and to train technical and administrative personnel for the services.

Probable duration: 1961-1969.

Assistance provided: 7 short-term consultants and advisory services by the engineer assigned to project El Salvador-3100 and by professional personnel of projects AMRO-2103 and -2203 and Headquarters; and the following fellowships:

Awards	Field of study	Place of study	Months
4	Organization and administration of water supplies	Puerto Rico	1½
2	Sanitary engineering	Colombia	2½

Work done: From 20 February to 24 March a study was made of every administrative and organizational aspect of the National Water Supply and Sewerage Administration (ANDA). The results were assembled in a 3-volume manual containing all the recommendations and suggestions for improvement of the services. Advisory services were later rendered for 2 months to the pertinent department of ANDA in the operation and maintenance of water supply services.

Educational activities were carried out in connection with the rural water supply program and community development.

A background study and investigation of the water resources in the metropolitan San Salvador area, which covers 600 km², was begun with the assistance of the United Nations Development Program. Work was also started on the improvement and expansion of 16 urban and 10 rural water supply systems and of 2 sewerage systems, and was continued, from the previous year, to improve, expand, or build new facilities in relation to 39 urban and 14 rural water supply systems and for 3 sewerage systems. The nationwide Water Rates Study was completed and submitted to the Legislature.

PAHO/CWSF, PAHO/OF

IDB

EL SALVADOR-3100 (-19), National Health Services

Objective: To plan and carry out integrated health services programs as part of a national health plan.

Probable duration: 1963-1968.

Assistance provided: 1 medical adviser, 1 sanitary engineer, 1 public health nurse, and advisory services by the nurse assigned to project AMRO-3203; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Dental care and health (dental public health)	Brazil	2½
1	Environmental sanitation (water supply systems)	Colombia	2
1	Laboratory services (bromatology)	Brazil	5½
1	Ditto (food and drug control)	Panama	¼
1	Medical education (biochemistry and pharmacology)	United States of America	12
1	Medical use of radioisotopes	Chile	7
1	Public administration	Costa Rica	2½
1	Ditto	Chile	1½
1	Public health administration	Mexico, Yugoslavia	1
1	Public health planning	Chile	3½

Work done: The Ministry of Public Health and Social Welfare continued improving its network of medical care services for a population of 2,277,300 through the following 151 establishments: 14 hospitals, 9 health centers, 57 health units, and 71 health posts and mobile units. One result of this advance was the rising trend in number of medical calls.

The principal communicable diseases, in order of importance, were still gastroenteric affections, colitis, influenza, malaria, pneumonia, bronchopneumonia, and helminthiasis. There is a total of 6,145 hospital beds in the country, of which 5,527 beds are maintained by the National Department of Health, 297 by the Social Security Fund, 94 by the Military Hospital, and 245 by private facilities.

Plans were drafted to build 3 hospitals with a total of 500 beds, 18 health units and 32 health posts, and to replace 3 hospitals now housed in very old buildings with foreign financing. A study was made of the equipment and instruments needed for the new Benjamin Bloom Pediatric Hospital, and a study of its personnel and organization was begun.

The Ministry conducted a survey of the relationship between its own medical care programs and those of the Social Security Fund, and wrote a report that was distributed to all interested agencies.

Progress was made in improving the organization and administration of services at the Pediatric and Maternity Hospitals in San Salvador, and at the Santa Ana Sonsonate general hospitals.

Inspections of domestic water supply facilities, food sales, industrial premises, garbage and excreta disposal, and construction of sanitary latrines were continued.

Studies were made of the equipment on hand at public health laboratories now operating, and of the premises, installations, personnel resources, and performance. New serology techniques were introduced in several laboratories particularly in connection with syphilis, brucellosis, and Chagas' Disease. Additional facilities were built in the bromatology laboratory of the National Department of Health, which increased the working area and performances in this discipline.

Data on work done in medical care, control of communicable diseases, and environmental sanitation are as follows:

<i>Activities and norms</i>	<i>Targets (1966) (year)</i>	<i>Percent accomplished (first 10 months)</i>
Medical calls	1,413,424	68.4
Hospital discharges	142,483	74.8
Nurse calls	147,021	49.2
Smallpox vaccinations	210,000	158.9
DPT vaccinations	94,810	111.9
Antitetanus vaccinations	81,000	529.9
Poliomyelitis vaccinations	660,000	71.1
BCC vaccinations	500,000	49.8
Inspections of:		
Home water supply	39,466	50.8
Excreta disposal	67,002	67.9
Household garbage	49,643	67.1
Industrial establishments	1,705	61.5
Food establishments	44,488	58.3
Miscellaneous	89,496	61.8
Latrine construction	2,590	77.4

In the training field, the 2 basic nursing courses (11 months each) were continued, for 88 students, and the following courses were given: 1 in nursing supervision and administration (2 months), for 60 nurses; 4 in auxiliary nursing (11 months each), for a total of 118 students; 2 for sanitation inspectors (2 months), for 41 students; and 2 (5 months) for the retraining of 58 health inspectors. There

was also a cycle of inservice training in patient care for 31 nurses and 1 physician.

PAHO/RB, WHO/UN-TA

UNICEF

EL SALVADOR-3101 (-8), Fellowships for Health Services

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
1	Laboratory services (tropical medicine)	Brazil	3
1	Medical pedagogy	Honduras	1½
1	Ditto (pharmacology)	Chile	12
1	Medical records librarianship	Costa Rica	4¼
4	Nursing education	Mexico	1
1	Nursing pedagogy	Brazil	10
1	Nursing services administration and supervision)	Guatemala	9
1	Ditto (prematurity)	Chile	6
1	Occupational health	Ditto	6
1	Organization of medical education (public health nutrition)	Guatemala	2½
1	Sanitary engineering	Ditto	11
1	Ditto	Puerto Rico	1

WHO/RB

EL SALVADOR-3300 (-15), Public Health Laboratories

Objective: To develop a nationwide public health laboratory program that will include the establishment of laboratories in local areas at present lacking them, work regulations and techniques, and the training of professional and auxiliary personnel.

Probable duration: 1964-1968.

Assistance provided: Advisory services by Zone II Office staff and the following fellowships:

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
1	Enteric diseases (bacteriology)	United States of America	¾
1	Laboratory services (microbiology)	Brazil	6

Work done: The national authorities completed the studies (begun in 1965 with advisory services by PAHO/WHO) on existent laboratory equipment and its improved utilization, premises, staff and technical resources. New installations for the bromatology laboratory were planned and established by the National Department of Health, which resulted in expansion of the work area and improved services. New serology techniques were introduced in the Santa Ana Hospital for syphilis, brucellosis, and Chagas' disease, as well as electrophoresis. A laboratory was planned for the San Miguel Hospital and a new tuberculosis laboratory for the Health Unit.

The 614,878 examinations performed included serology of syphilis, isolation of mycobacteria and tests of their

VIII. PROJECT ACTIVITIES

resistance, as well as tests of the purity of water and milk, and other tests.

PAHO/RB

EL SALVADOR-4200 (-16), Nutrition

Objective: To develop, with the participation of the Ministries of Public Health and Social Welfare, of Agriculture and Livestock, and of Education, an integrated program aimed at improving the nutrition status of the population of selected areas of the country and planned for expansion into a nationwide program.

Probable duration: 1964-1967.

Assistance provided: Advice by INCAP personnel.

Work done: An evaluation of the Applied Nutrition Program pointed out its strengths and weaknesses, and, among the latter, that interest in the program seemed to have diminished.

A nutrition survey was conducted with the assistance of INCAP and the Office of International Research of the U.S. National Institutes of Health and the major nutrition problems of the country were identified.

FAO, UNICEF

EL SALVADOR-6200, Medical Education

Objective: To strengthen medical education by improving the training of medical-faculty members and the pedagogical approach to the teaching of medicine.

Probable duration: 1965-

Assistance provided: 1 short-term consultant; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical education pedagogy	England, France, Sweden	1
2	Pedagogic methods	Costa Rica	1/2

Work done: The School of Medicine of the Autonomous University of El Salvador established a Unit of Obstetric Physiology for training and research in the physiology of reproduction.

PAHO/RB

EL SALVADOR-6400, Sanitary Engineering Education

Objective: To improve training in sanitary engineering in the regular courses of civil engineering; and to cooperate in the establishment of a program of short courses on subjects of interest in the country.

Probable duration: 1965-1970.

Assistance provided: 3 short-term consultants and advisory services by professional personnel of Headquarters, of project AMRO-6403, and of projects of Zone III countries; and 1 grant.

Work done: 3 intensive courses were held: on design of water treatment plants for small communities, from 19 Sep-

tember to 1 October, for 23 students; on protection against injurious forms of radiation, from 19 to 30 September, for 8 students; and on industrial health and safety, from 2 to 15 October, for 47 students. As a result of the interest awakened by the last 2 courses, a study was initiated on the possibility of establishing national projects in both fields.

A Regional Symposium on the Administration of Water and Sewage Enterprises was also held, from 28 November to 3 December, with 105 participants.

PAHO/RB

EL SALVADOR-6600, Dental Education

Objective: To reorganize and expand the activities of the Department of Preventive and Social Dentistry at the Autonomous University of El Salvador; and to establish a research center for the study of relationships between economic and social problems and dental health.

Probable duration: 1965-1971.

Assistance provided: 1 short-term consultant and advisory services by Headquarters personnel; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Clinical dentistry (microbiology)	Brazil	1 1/2
1	Dentistry (oral pathology)	Puerto Rico	6

Work done: The Autonomous University of El Salvador and PAHO/WHO signed an agreement aimed at strengthening the activities of the Department of Preventive and Social Dentistry of the School of Dentistry, and a plan of operations for 1967 was subsequently prepared in which priorities among areas of technical assistance were specified. A basic course in social sciences was conducted for the faculty and programs for the teaching of social sciences were prepared. The faculty were surveyed to ascertain their receptivity to the new study plan.

PAHO/RB, WHO/RB

RF

FRENCH ANTILLES AND GUIANA-0200 (-4), Malaria Eradication

Objective: To eradicate malaria in French Guiana and maintain Guadeloupe and Martinique free of this disease.

Probable duration: 1963-1969, year in which the consolidation phase is expected to be completed in French Guiana.

Assistance provided: Antimalaria drugs.

Work done: In French Guiana, 9,432 house-sprays were performed. Of the 6,180 blood smears examined, 12 (0.12%) were positive, 8 of which were caused by *Plasmodium falciparum*.

Guadeloupe and Martinique continued without malaria.

PAHO/SMF

GUATEMALA-0200 (-1), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1955-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 1 sanitation engineer, 1 entomologist, and 3 sanitation inspectors; anti-malaria drugs and other supplies; and a limited amount of equipment.

Work done: Financial difficulties limited the activities of this program. House-spraying carried out amounted to 278,804. Blood smears examined totaled 376,439 of which 22,045 (5.8%) were positive, indicating an increase in malaria positivity over the previous year. The rising incidence of malaria led the service to reverse the classification of all areas in consolidation phase to attack phase.

In August the Government of Guatemala and the United States Agency for International Development signed a loan agreement to finance the malaria eradication campaign.

PAHO/SMF, WHO/MESA

UNICEF

GUATEMALA-2101 (-22), Rural Sanitation

Objective: To develop water supply and sewage disposal systems for 50% of the rural population.

Probable duration: 1965-

Assistance provided: 1 sanitary engineer and advisory services by professional personnel of project AMRO-2203.

Work done: The construction of 6 rural water supply systems (begun in 1965) was completed, and work was started on 14 additional systems. These 20 systems will benefit 23,085 inhabitants.

A total of 203,055 environmental sanitation inspections were made throughout the country.

An Inter-American Development Bank loan of US\$1,330,000 was obtained for the construction of 90 small water supply installations to benefit a population of about 90,000. The total cost of the program will be US\$2 million, of which the Government is to cover 38%.

The First Special Course for Health Inspectors was started in the third quarter with 16 students from the 4 Health Regions of the country.

WHO/UN-TA

GUATEMALA-2200 (-17), Water Supplies

Objective: To prepare long-term programs for urban and rural water supplies; and to improve the organization and administration of water and sewerage services.

Probable duration: 1961-

Assistance provided: Advisory services by the professional personnel of the Zone III Office and by personnel assigned to project AMRO-2208.

Work done: The Ministry of Public Works, the Institute for Municipal Development, and local municipalities continued the program in urban areas. The Ministry completed the construction of 13 out of 23 water supply systems that will ultimately serve a population of 68,000

inhabitants. The Inter-American Development Bank approved a new line of credit to the Institute in the amount of US\$3,020,000 to finance the construction of water supply and sewerage installations in urban areas in the interior of the country.

The Institute and the Municipality of Guatemala City asked PASB for assistance, the former in the selection of consultants to determine the best way to expand the water supply system of the capital, and the latter in a study toward improving the administration of the water supply service in that city.

National and international staff discussed various aspects of the water fluoridation program in the capital.

GUATEMALA-3100 (-8), National Health Services

Objective: To formulate and carry out a national health plan providing for the extension of health services to the entire population and for the preparation of professional and auxiliary personnel.

Probable duration: 1954-1968.

Assistance provided: 1 sanitation inspector and 2 short-term consultants; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Health statistics	Chile	1
1	Laboratory services	Venezuela	2
1	Medical care (hospital administration)	United States of America	6
3	Medical pedagogy	Honduras	½
1	Ditto	Brazil, Chile, Colombia, Venezuela	1½
1	Ditto	Brazil, Colombia, Venezuela	1½
1	Nursing education	Colombia	12
1	Nursing services (pediatrics)	Mexico	10
4	Programmed instruction	Ditto	1
2	Public health administration	Ditto	10½
1	Ditto	Chile	1
1	Zoonoses (rabies)	Argentina	6

Work done: The National Department of Public Health gave special attention to the preparation of technical and administrative standards, to enhance the effectiveness of activities scheduled for the year, and to the defining of the goals for the following year; it also prepared a plan of nursing operations for the next 5 years.

The general health services network was expanded with the completion of 4 health centers and 5 health posts previously under construction. Work was started on construction of the facilities for installing IBM equipment at the Department, and progress was made in the organization of the Division of Public Health Laboratories.

Cases of rabies reported between January and September were: 4 human, 141 in dogs, and 6 in cats. A total of 2,959 persons reported having been bitten; 4,198 animals were kept under observation.

Steps were taken to prevent the country's reinfestation by *Aedes aegypti*.

Under the national vaccination program, during the first 9 months of the year the health centers applied 183,228

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doses of DPT, 249,501 doses of TAB, 327,834 of smallpox vaccine, 91,690 of poliomyelitis vaccine, 1,835 of BCC vaccine, 14,281 of rabies vaccine, 89 of cholera vaccine, 49 of yellow fever vaccine, 1,944 of influenza vaccine, 1,437 of measles vaccine, and 82 doses of tetanus vaccine.

Statistical codes were devised for the weekly morbidity report; 445 monthly reports from health centers were tabulated, as were 229 reports from the central offices and the results of the vaccination programs.

A total of 1,500 undernourished children recovered and 258 supervisory calls were made. Nutrition programs were planned in 18 services and 1,308 food samples were analyzed for their characteristics. Tabulation of the height and weight of 3,044 boys and 2,406 girls, all of preschool age, was completed toward the drawing of a frequency curve.

Some of the established targets for the year in the areas of the program and the percentages of their fulfillment are given below:

Activities and norms	Targets (1966) (year)	Percent accomplished (9 months)
Chest examination: children 0 to 14 years	35,000	77.6
Medical calls	628,565	125.9
Construction of health centers	18	22.2
Construction of health posts	8	62.5
Vaccinations:		
Smallpox	687,055	47.7
DPT	186,416	98.2
Poliomyelitis	34,477	265.9
Vaccine production:		
Typhoid	700,000	119.7
Smallpox	2,000,000	0.9
Rabies, canine	30,000	36.6
Bovine	10,000	26.6
Human	15,000	1,694.9

In the field of education, basic nursing training was continued at the 2 schools of nursing in the country, with 105 students attending; an evaluation of the postbasic course in nursing administration, including a review of the course's material on administration, was begun; 2 nursing-auxiliary courses (5 months each) were conducted for 60 students; and 1 in public nursing (7 months) was given for 11 nurses. In connection with the nutrition problems, 10 academic courses in nutrition education and 561 public talks were given, and 2,658 posters and 20,461 pamphlets were prepared and distributed. A total of 167 teachers and 336 students were interviewed in connection with various health education activities. Twelve short courses in health habits were conducted, and 118 educational sessions were held at schools and colleges using various kinds of audiovisual aids. Other courses conducted during the year were: 1 in sanitation inspection (10 months), for 14 candidates; 1 laboratory-assistant course (10 months), for 5 students; and several in delivery techniques and care of the newborn, for 110 lay midwives in several localities in the country.

PAHO/RB, WHO/RB

UNICEF

GUATEMALA-3300 (-21), Public Health Laboratories

Objective: To study and evaluate the services provided by the existing central and local public health laborato-

ries; to plan operating programs for the Biological Institute and for all laboratories that function at other levels; to establish local laboratories wherever necessary; and to train the necessary personnel.

Probable duration: 1964-1966.

Assistance provided: 1 specialized adviser; laboratory equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical education (parasitology)	Chile	2
1	Laboratory services (preparation of vaccines)	Ditto	5
1	Veterinary course for instructors	Peru	11½

Work done: During the first 9 months of the year, the Biological Institute, which served as the Regional Laboratory for the entire Central American Isthmus for the preparation of biological products, produced 254,240 cc of rabies vaccine for human use and 10,985 cc of canine rabies vaccine, 2,660 doses of bovine rabies vaccine, 39,184 cc of smallpox vaccine and 138,000 cc of typhoid vaccine. Although the country absorbed a considerable part of the products prepared, and used reserve products when necessary, it distributed among neighboring countries 8,781 complete series of rabies vaccine for human use, 12,860 doses of canine rabies vaccine and 1,770 doses of bovine rabies vaccine; 407,200 doses of smallpox vaccine and 289,840 cc of typhoid vaccine. Whooping cough and diphtheria vaccines were prepared on an experimental basis.

The Institute also performed 57,701 serological tests for the diagnosis of syphilis and 12,912 bacteriological examinations; 252 rabies specimens were examined, as well as 17,831 stool specimens. Furthermore, 2,959 food samples were analyzed.

A course was conducted for 8 laboratory assistants.

PAHO/OF, WHO/UN-TA

AID

GUATEMALA-6200, Medical Education

Objective: To strengthen medical education by improving the training of medical-faculty members and the pedagogical approach to the teaching of medicine.

Probable duration: 1965-

Assistance provided: 1 short-term consultant and advisory services by Headquarters personnel.

Work done: Discussions were held with the pertinent authorities of the School of Medicine of the University of San Carlos on the planning and organization of a teaching program in rural medicine, and on the reorganization of the general medical education program.

PAHO/SFHP

GUATEMALA-6300, Nursing Education

Objective: To evaluate the curriculum of the National School of Nursing in relation to the health needs of the country.

Probable duration: 1955-1964; 1965-

Assistance provided: Advisory services by the nurse assigned to project AMRO-3203.

Work done: Steps were taken to initiate a postbasic program that would enable nurses to obtain a bachelor of science degree in nursing. Consequently, the Director of the School of Nursing asked for a short-term consultant to review the program that was planned, so as to ensure that candidates will, upon completion of studies, meet requirements for admission to universities of other countries for advanced courses in nursing.

GUATEMALA-6500 (-14), Veterinary Medicine Education

Objective: To strengthen the School of Veterinary Medicine of the University of San Carlos, especially as to the teaching of public health and preventive medicine.

Probable duration: 1962-1967.

Assistance provided: 1 short-term consultant and advisory services by personnel assigned to project AMRO-0703; and a limited amount of equipment and teaching materials.

Work done: Regular courses in zoonoses and public health were completed and 1 course in epidemiology was held in the Public Health Department of the School and was attended by teachers from various departments and students in their final years.

A review was undertaken of the research projects being carried out by the Faculty Research Council.

In collaboration with the Pan American Zoonoses Center, the Organization provided antigens and bacterial strains to the various departments of the School.

PAHO/RB

GUYANA-0200, Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1961-1971, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 laboratory adviser, 2 sanitation inspectors, and advisory services by Headquarters and AMRO-0200 personnel as well as by the malariologist assigned to project Surinam-0200; and antimalaria drugs.

Work done: Throughout the whole country, 8,618 house-spraying were carried out. Of the 53,669 blood smears examined, 910 were positive: 882 from areas in the consolidation phase and 11 from areas in the maintenance phase.

In the spring an outbreak of *Plasmodium vivax* was discovered in the upper reaches of 2 rivers in the Northwest and Mazaruni-Potaro-Cuyuni districts which had been placed in consolidation phase in 1965. The cases were among Amerindians and were not discovered until the infection had gained a good foothold. By the end of 1966, 882 cases had been found in the Northwest district and the Cuyuni area, but evaluation in this latter area was still insufficient because it is very difficult to reach. Spraying was reinitiated and medicated salt distribution resumed in these districts.

The barrier spraying customarily carried out in the coastal sections to prevent reinfestation by *A. darlingi* was omitted during 1966 because of the urgent need for attention to the areas of the outbreaks.

Personnel of project AMRO-0200 provided consultant services concerning the improvement of laboratory activities.

PAHO/SMF

UNICEF

GUYANA-2300 (-51), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1946-1962 (part of AMRO-8); 1965-1967.

Assistance provided: Advisory services by the medical officer assigned to project AMRO-2300; technical guidance and supervision by the short-term consultant of project AMRO-2301 and part-time services by 1 sanitation inspector from the same project.

Work done: The campaign remained confined to Georgetown where the infestation index stood at 2.6% in January and by the end of the year had risen to 3% despite repeated treatments. This undesirable situation was due to technical (mosquito resistance to chlorinated insecticides) and administrative (deficient handling of field personnel) difficulties besetting the campaign since it was resumed (in 1965).

GUYANA-3100 (-10), National Health Services

Objective: To organize, expand, and integrate health services and environmental sanitation activities in the heavily populated coastal area and in isolated communities in the interior of the country.

Probable duration: 1963-1967.

Assistance provided: 1 medical adviser and consultant services by the professional personnel assigned to Zone I Office and by the nurse educator assigned to AMRO-6301; and one 2-month fellowship to study development of ground water sources, in the United States of America.

Work done: After a study of the general health activities program in the country, a first draft of the plan for health sector activities was prepared to fit them into the national development plan. In addition, evaluations were made, with the collaboration of the Pan American Sanitary Bureau, of the mental health and environmental sanitation conditions of the country, and of its available resources.

WHO/RB

UNICEF

GUYANA-3200 (-13), Nursing Services

Objective: To provide better health services in the country through continuous improvement of nursing services.

Probable duration: 1960-1963; 1965-1970.

Assistance provided: 4 short-term consultants and advisory services by the nurses assigned to projects AMRO-

VIII. PROJECT ACTIVITIES

3201 and 6301; equipment and supplies; and the following fellowships:

<i>Amurds</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
1	Nursing education (teaching)	Jamaica	12
1	Nursing services (administration)	United States of America	1
1	Ditto (psychiatric)	Canada	12

Work done: In an effort to improve both care of patients and nursing education, the short-term consultants (members of the faculty of Russell Sage College of Nursing) and 4 Brazilian instructors of nursing developed institutes for postbasic preparation of nurses at an intermediate level. Two 1-week orientation sessions were given to a total of 28 senior nursing personnel, from both hospital and public health services. A 6-week institute in Leadership and Newer Advances in Nursing was held for 29 junior level nurses (ward sisters, general department sisters, and health visitors).

Plans were made for the 4 instructors chosen to work with the consultants in the development of the program to carry on a continued education program throughout 1967, with the assistance of PAHO/WHO nurses assigned to projects AMRO-3201 and -6301.

PAHO/RB, WHO/UN-TA

HAITI-0200 (-4), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1961-1971, year in which the consolidation phase is expected to be completed.

Assistance provided: 2 medical officers (1 served also as codirector of the National Malaria Eradication Service), 2 sanitary engineers, 4 sanitation inspectors, and the services of 1 of the short-term consultants of project AMRO-0200; and antimalaria drugs.

Work done: From January through November, 768,776 house-sprays were carried out with DDT. Among 2,239,469 blood smears that were examined, 8,378 cases were discovered: 8,208 caused by *Plasmodium falciparum*, 135 by *P. malariae*, and 35 by *P. vivax*.

The primary attack measure in this program was collective treatment with antimalaria drugs, employing chloroquine-pyrimethamine tablets at 3-week intervals, and a maximum of 1,718,000 persons were under treatment at one time, in May. Successful reduction of the parasite reservoir and interruption of transmission permitted termination of the program in extensive areas during the year, and while some additional areas had to be brought under the program, the number of persons under mass drug administration of drugs at the end of November was 204,000. Active case-detection was carried on for a population of 2,809,000.

Early in the year, a team composed of USPHS and PASB personnel carried out an evaluation of the program and a further evaluation was made in October by an independent expert (AMRO-0200). The latter recommended that a census of all fever cases, and presumptive treatment, be carried out in the areas above 1,500 meters, classified as nonmalarious, but in which evaluation activi-

ties have shown that a parasite reservoir exists and is capable of reinfesting lower areas cleared through drug programs.

Hurricane Inez struck Haiti at the end of September and destroyed an estimated 67,000 houses in an area still subject to low-level transmission. A change in drug cycles, from 3- to 2-week intervals, was recommended for all areas where low-level transmission was persistent.

Personnel of AMRO-0200 provided advisory services on the improvement of laboratory services.

PAHO/SMF

AID, UNICEF

HAITI-0300 (-18), Smallpox Vaccination

Objective: To vaccinate 80% of the population of the country against smallpox in a period of 5 years.

Probable duration: 1962-1967.

Assistance provided: Advisory services by professional personnel of the Zone II Office and other projects in the country.

Work done: 262,854 persons were vaccinated, or 43.8% of the target of 600,000 vaccinations for the year. This brought the total vaccinated against smallpox since the beginning of the campaign to 1,584,691 persons, or about 45.3% of the ultimate campaign target of 3,500,000. Financial and administrative difficulties hampered the progress of the program and caused the low record of performance.

The smallpox vaccination program is going forward parallel with the yaws eradication campaign. Vaccination is by the multipressure technique and was administered either in house-to-house visits or to groups of people, whichever method was most convenient. Dried vaccine furnished by the Governments of Brazil and Venezuela was used.

HAITI-0600 (-1), Yaws Eradication

Objective: To eradicate yaws from the country; and to use the program's manpower resources to vaccinate 80% of the population against smallpox in a period of 4 years since 1962.

Probable duration: 1950-1967.

Assistance provided: Advisory services by the epidemiologist assigned to project AMRO-0102 and by the short-term consultant assigned to project AMRO-0600.

Work done: 35 cases of infectious yaws were reported. Administrative difficulties impeded the program, which is in the consolidation phase.

In order to determine the cause of the continued appearance of cases of yaws, in the early part of 1966 the epidemiologist carried out a preliminary investigation and indicated in his report the existence of conditions which made it impossible to achieve the objective of eradication unless far-reaching changes were made in the program and the latter were maintained on a regular basis in the future. Subsequently, the consultant carried out another study, expanding the previous one in order to determine the possibility of research into the present status of infectious yaws in Haiti, the causes of its recurrence, and

the measures to be adopted to achieve definitive elimination of the disease. His report points out facts that cast doubts on factors believed to be part of the epidemiology of yaws, particularly with regard to communication of the disease, which will require more detailed investigation of that aspect.

HAITI-2200 (-22), Water Supplies

Objective: To plan, design, and finance an extension to the water supply system of Port-au-Prince and, later, to plan accordingly for the rest of the country.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer, 1 short-term consultant (2 visits), and advisory services by 2 consultant engineering firms, by Headquarters professional personnel, and by the sanitary engineer assigned to AMRO-2102.

Work done: Design plans and specifications for the first stage of construction to expand the water supply system of Port-au-Prince were completed. Hydrological investigations of water sources were carried out. The National Water Authority undertook a census of subscribers and obtained the services of an expert in administration.

PAHO/RB, PAHO/CWSF, PAHO/OF IDB

HAITI-3100 (-16), National Health Services

Objective: To develop integrated public health services at the national and local levels; and to establish a demonstration and personnel-training area.

Probable duration: 1957-1968.

Assistance provided: 1 medical adviser (the PAHO/WHO Country Representative), 1 public health nurse, 1 statistician, 1 secretary, and advisory services by the nurse assigned to project AMRO-3202; and equipment and supplies.

Work done: The Ministry of Public Health completed a preliminary study of its statistical system for the purpose of improving it. Improvements were made in the case-history files of the Port-au-Prince General Hospital. The Haitian Institute of Statistics made a study of the 1950 census in cooperation with PASB, and computed projections of the present and future population. In addition, plans were made for a national survey of public and private health services and resources.

The demonstration area of the Plain of Cul de Sac and Arcahaie Commune (department of the West), with a population of 35,903, was delimited, and its health problems were defined and its plan of activities established. Medical calls totaled 15,011, of which 6,004 were first calls. Care was provided for 397 expectant mothers, and 319 of them were vaccinated against tetanus. Sanitation inspectors made 1,625 visits; 23 latrines were built, and 2 repaired.

There were 53 meetings with community councils on community organization and health education, 40 health education sessions for mothers, and 80 meetings with pregnant women. In nutritional recovery services 1,403 calls were handled, and 40 educational talks for mothers were given.

Training activities under this project included courses in nursing services administration (40 hours), for 22 grad-

uate nurses; orientation in rural public health (2 months), for 40 last-year student nurses; and training in delivery techniques and care of the newborn (25 days), for 16 lay midwives.

PAHO/RB, WHO/UN-TA UNICEF

HAITI-3101, Fellowships for Health Services

One 6-month fellowship was granted to study electroencephalography in the United States of America.

PAHO/RB

HAITI-3102, Fellowships for Health Services

One 4-month fellowship was granted to study electroencephalography in the United States of America.

WHO/RB

HAITI-3103 (-24), Emergency Health Services

Objective: To rehabilitate and strengthen the public services of the country, including the health services, in the areas affected by hurricane Flora (1963).

Probable duration: 1964-1966.

Assistance provided: Advisory services by personnel assigned to other projects in the country.

Work done: The equipment and supplies for hospitals and health centers sent by UNICEF were distributed. This project will become part of project Haiti-3100.

UNICEF

HAITI-3300 (-9), Public Health Laboratories

Objective: To strengthen the organization of the Public Health Laboratory for the purpose of improving its services; to establish subsidiary laboratories in 3 local areas; and to improve the functioning of hospital laboratories and dispensaries in the region damaged by hurricane Flora.

Probable duration: 1953-1968.

Assistance provided: Advisory services by Zone II Office staff; equipment and supplies for the laboratories of the Health Centers of Port-au-Prince and those of 8 hospitals, as well as for the School of Medical Technology; and one 3/4-month fellowship for the study of enteric diseases (bacteriology), in the United States of America.

Work done: A technical Laboratory Committee was established for the purpose of revising standards and defining equipment needs for the expansion of peripheral laboratories. The laboratory of the General Hospital of Port-au-Prince and that of the School of Medical Technology improved their work systems.

PAHO/RB

HAITI-4200 (-20), Nutrition

Objective: To develop a nutrition program; and to establish an agency to coordinate the nutrition functions of the Ministries of Health, of Education, and of Agriculture.

Probable duration: 1961-1969.

Assistance provided: Equipment and supplies.

Work done: The Ministry of Public Health established a Bureau of Nutrition and the latter worked in close cooperation with the Ministry of Agriculture in joint programs in Fonds Parisien, Ganthier, and Guérin. Ten nutrition rehabilitation centers were in operation—5 of which were opened during the year—and 7 of them were integrated within the public health services.

Successful acceptability tests were conducted with AK-1000—a cereal-beans blend used as a food for preschool children; commercial distribution of the mixture was being studied.

PAHO/RB, PAHO/OF

FAO, UNICEF

HAITI-4203, Nutrition (Fonds Parisien)

Objective: To assess the functioning and results of a pilot nutrition center as a means for treating malnourished children at a low cost and for educating their mothers.

Probable duration: 1965 (as part of project Haiti-4200)-1970.

Assistance provided: A grant for local costs.

Work done: A clinical, anthropometrical, and dietary survey was conducted in July and August in Fonds Parisien and the control community of Ganthier. The findings were being processed for analysis.

PAHO/OF

Williams-Waterman Fund

HAITI-4204, Nutrition and Maternal and Child Health

Objective: To strengthen the nutrition education activities in the Mother and Child Health Center of the General Hospital in Port-au-Prince.

Probable duration: 1965 (as part of Haiti-4200)-1969.

Assistance provided: Advisory services by Headquarters personnel and other projects in the country; and a grant for local expenses.

Work done: The Nutrition Education and Rehabilitation Center, which functions within the Mother and Child Health Center in the General Hospital in Port-au-Prince, was used to provide specific training for nurses, medical students, and hospital residents in pediatrics. It also served as an example of effective integration of nutrition activities within a public health program.

Foundation for International Child Health, Unitarist Universalist Service Committee,
PAHO/OF **Williams-Waterman Fund**

HONDURAS-0200 (-1), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 2 sanitation inspectors, and advisory services by personnel of project AMRO-0200; antimalaria drugs and a limited amount of other supplies and equipment.

Work done: Activities were restricted by budgetary limitations. Only 118,142 house-sprays were performed, a collective-treatment program covered a population of 16,000, and, among 360,802 blood smears examined, 17,115 were positive. An outbreak occurred in the southern problem area, including the collective-treatment area, in July and August. Incidence also rose in consolidation-phase areas and areas with a population of 410,000 were returned to attack phase.

A team composed of USPHS-PASB personnel made an evaluation of the program and the malaria situation and revised the 3-year plan of operations during November. The loan agreement (negotiations were begun in 1965) between the Government of Honduras and the United States Agency for International Development was signed.

Personnel of AMRO-0200 assisted in the preparation of a plan by which the general health services will participate in malaria eradication. The plan was put in operation under the direction of a coordinator from the Ministry of Public Health and Social Welfare. At year's end, considerable improvement in case-detection activities by local health services had already been achieved in some areas.

Also, personnel of AMRO-0200 provided advisory services on the improvement of laboratory services.

PAHO/SMF, WHO/MESA

AID, UNICEF

HONDURAS-0400, Tuberculosis Control

Objective: To organize, in the Departments of Comayagua, Francisco Morazán, and La Paz a demonstration area for the following purposes: to obtain epidemiological data, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1962-

Assistance provided: Advisory services by personnel assigned to projects AMRO-0400 and -0403.

Work done: Application of the concept of integration of antituberculosis services with the general health services was continued. The Department of Health prepared manuals of standards which include chapters on tuberculosis. Efforts to improve the efficacy of the control of cases and to regularize the administration of drugs were intensified. Application of BCG vaccine and control and followup of cases and contacts were carried out in 20 health centers and subcenters, and in the principal hospitals and maternity clinics BCG vaccine was administered to newborn infants.

All beds assigned to tubercular patients were concen-

trated in the national Sanatorium, thereby releasing for other purposes those in the San Felipe and Santa Rosita Hospitals. Owing to the decrease in tuberculosis cases in which surgery is performed the possibility of utilizing sanatoriums for other diseases of the thorax was under consideration.

The activities carried out and the respective percentage of the goals established for the year were: 165,371 tuberculin tests (70% of the goal), 144,621 BCG vaccinations (102% of the goal), 104,636 photofluorographic examinations (111% of the goal), and 1,804 cases detected (32% of the goal).

HONDURAS-2200 (-9 and -10), Water Supplies

Objective: To organize, plan, and carry out national programs for the provision of water supplies and improvement of existing services.

Probable duration: 1960-

Assistance provided: 1 short-term consultant (community development), 1 administrative methods officer, and advisory services by the engineer assigned to project Honduras-3100 and by the personnel of projects AMRO-2103 and -2203.

Work done: The National Autonomous Water Supply and Sewerage Service continued to act on the recommendations made the previous year for its administrative reorganization.

Under the urban program, 12 water supply systems were completed, the construction of 13 was begun, and plans were in preparation for 18 new systems. The contract for expansion of the water supply system of the capital was awarded and installation of the 5 km conduit to the treatment plant was completed.

In addition, 32 water supply installations in rural areas were completed and 4 others were under construction with the assistance of CARE.

A promotion campaign was carried out in connection with the rural water supply program and community development.

PAHO/RB

HONDURAS-3100 (-4), National Health Services

Objective: To organize integrated public health services gradually, both at the central and local levels; and to train personnel.

Probable duration: 1955-1967.

Assistance provided: 1 medical adviser (the PAHO/WHO Country Representative) 1 sanitary engineer, 1 public health nurse, and advisory services by the nurse assigned to project AMRO-3203.

Work done: The National Congress approved the National Health Code bill. The Ministry of Public Health and Social Welfare prepared a preliminary draft of organic regulations and continued its own reorganization, during

which it set up a National Training Department with an appropriate budget and staff.

The National Health Plan was reviewed and a budget designed in accordance with its goals was approved.

The performance of the first 2 integrated health centers to operate in the country was elevated, and plans were made for the integration of 3 new hospitals and health centers. Progress was made in the coordination of malaria eradication activities in Health Districts III, VI, and VII.

Following are figures on some of the more important activities carried out under this project:

<i>Activities and norms</i>	<i>Targets (1966) (year)</i>	<i>Percent accomplished (first 10 months)</i>
Smallpox vaccinations: 100% of those under 1 year of age and ½ of those more than 1 year old	375,629	22.2
DPT vaccinations: 100% of the population under 1 year and 50% of children 1 to 5 years old (2 doses)	233,168	11.3
Medical calls:		
50% of expectant mothers	52,576	26.8
20% under 1 year	10,242	43.5
20% of well children, 1 to 5 years	45,860	8.4
Home visits by nurses	114,800	40.0
Tuberculin tests	234,500	70.5
BCG vaccinations	140,789	102.7
Photofluorographies	93,861	111.4
Leprosy control:		
Case finding	53	32.0
Cases under control	227	94.2
Contacts under control	1,782	69.6
Chemoprophylaxis	64	93.7
Aqueducts completed	12	100.0
Aqueducts begun	20	55.0
Aqueducts designed	20	90.0
Well pumps installed	6	100.0
Wells drilled and pumps installed	18	100.0

One course in auxiliary nursing (9 months) was conducted for 50 students, and 30 nurses received inservice training in administration and supervision.

WHO/UN-TA

UNICEF

HONDURAS-3101 (-6), Fellowships for Health Services

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
1	Environmental sanitation	Colombia	2
1	Laboratory services (food and drug control)	Panama	2
1	Public health administration	Mexico	10½
1	Ditto (health education)	Puerto Rico	11½
1	Public health planning	Chile	3½
1	Tuberculosis (laboratory techniques)	Venezuela	3

PAHO/RB

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HONDURAS-3102 (-7), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Hospital administration	Mexico	10½
1	Leprosy	Ecuador, Venezuela	2
2	Medical pedagogy	Costa Rica	½
1	Nursing services	Chile	10
1	Ditto	Guatemala	9
2	Pediatrics	Chile	3
1	Public health nursing	Ditto	10
1	Sanitary engineering	Costa Rica	½
1	Ditto	El Salvador, Guatemala	11
1	Ditto	Guatemala	11

WHO/RB

HONDURAS-4200 (-51), Nutrition

Objective: To develop an expanded nutrition program in a selected area of the country.

Probable duration: 1961.

Assistance provided: Advice by INCAP personnel.

Work done: A medical nutritionist trained at INCAP was appointed as nutritionist in the Ministry of Public Health and Social Welfare and was assigned responsibilities for the health aspects of the Applied Nutrition Program. An evaluation of the program was carried out and pointed out its strengths and weaknesses. According to the evaluation, the program had not developed as envisioned, but some training programs for professional and auxiliary health personnel and teachers were being carried out, radio programs were conducted twice a month, and some lectures and demonstrations were held from time to time. The teaching of nutrition was becoming a part of the health instruction taught by the teachers in the primary grades.

A nutrition survey was conducted with the assistance of INCAP and the Office of International Research of the U.S. National Institutes of Health and the major nutrition problems of the country were identified.

HONDURAS-4400, Fellowships on Dental Health

One 9-month fellowship to study dental biochemistry in Argentina.

PAHO/RB

HONDURAS-4800, Medical Care Services

Objective: To improve the medical care services of social security institutions in the country.

Probable duration: 1965.

Assistance provided: 3 short-term consultants and consultant services by the adviser of project AMRO-4800.

Work done: A coordinating committee was set up at the central level to carry out the administrative decentralization of the National Health Department by establishing the headquarters for the local health services. The inte-

gration of the local health services in 2 districts was evaluated and found to be making real progress.

IDB and PASB officials visited the principal health agencies in Tegucigalpa, San Pedro Sula, and neighboring towns for the purpose of evaluating a Government application for an IDB loan for the construction of hospitals. The mission analyzed the general health situation in the country, studied the priorities, and formulated recommendations aimed primarily at improving and facilitating the health education programs as a first step in the hospital construction project.

PAHO/RB

HONDURAS-6200, Medical Education

Objective: To strengthen medical education by improving the medical professors' training in basic sciences.

Probable duration: 1965.

Assistance provided: Advisory services by Headquarters personnel and by the consultant assigned to project AMRO-6203.

Work done: Discussions were held with the pertinent authorities of the School of Medicine of the University of Honduras on a reorganization of the School's program.

HONDURAS-6300 (-14), Nursing Education

Objective: To establish a university school of nursing in Tegucigalpa.

Probable duration: 1965-1970.

Assistance provided: 1 instructor and advisory services by the nurse assigned to project AMRO-3203.

Work done: A coordinating committee composed of the Dean of the School of Medical Sciences, the Director of the Department of Public Health Nursing, the Director of the Department of Nursing Education and the PAHO/WHO consultant in nursing education was established. The committee performed the following tasks: (a) Formulated the by-laws of the Department of Nursing Education, presently being studied by the Governing Board of the School of Medical Sciences of the National Autonomous University; (b) Recommended candidates for executive positions in the aforementioned Department (the Director was appointed on 1 July and the Assistant Director on 1 September); (c) Approved the selection of 10 applicants for fellowships of the National Child Foundation and 24 applicants for admission to the first year of general studies (basic sciences); (d) Approved 2 applications for PAHO/WHO fellowships; (e) Prepared both a make-up course (for 12 student nurses who failed to pass examinations during the first semester of general studies) and a program for university extension courses for nurses; (f) Formulated a training plan for 3 levels of nursing personnel: nurse with a university degree (4-year studies); nurse (2-year studies), and nursing auxiliary (1-year training); (g) Studied and recommended the organization of a school for nurses at the Hospital D'Antoni in La Ceiba, with a program of 2 academic years which includes practice and 1 year of social service (an experimental program

which was initiated in March with 6 students); (h) Organized a committee to promote interest in nursing as a profession and approve candidates for admission (the committee prepared a program of long-term costs); (i) Negotiated with the National Child Foundation the purchase of furniture and equipment for the new building of the School of Nursing and furnished the administrative offices, remaining pending for 1967 the purchase of furniture and equipment for other premises; and (j) Prepared the 1967 budgets of the School of Nursing (of the National Autonomous University of Honduras) and of the National Child Foundation.

PAHO/RB

HONDURAS-6400, Sanitary Engineering Education

Objective: To organize and carry out courses on problems related to the water supply program.

Probable duration: 1965-1970.

Assistance provided: 2 short-term consultants and advisory services by professional personnel of Headquarters and by 1 of the consultants assigned to project AMRO-6403; and a grant to the National Autonomous University.

Work done: 2 intensive courses were held: 1 on pumps and geophysics, from 18 to 30 July, for 12 students; and 1 on the design of water-treatment plants for small communities, from 12 to 24 September, for 18 students.

PAHO/RB, PAHO/CWSE

JAMAICA-2200, (-16), Water Supplies

Objective: To design and build, or improve, water supply systems in rural areas; and to organize the services for efficient operation and maintenance.

Probable duration: 1963-1968.

Assistance provided: 1 sanitary engineer and advisory services by professional personnel assigned to the Zone I Office.

Work done: Under this rural water supply program the Government intends to construct 63 water supply systems, in 3 phases. The first 14 systems, to serve 52,000 persons at a cost of US\$300,000, were under construction. The second phase consists of 21 systems to serve 73,000 persons at a cost of US\$445,000; funding for purchase of material was in process and at one site excavations had been started. The third phase consists of 28 systems to serve 105,000 persons at a cost of US\$645,000; preliminary studies of 38 proposals and provisional selection of the 28 project sites had been made, subject to Cabinet approval.

WHO/UN-TA

UNICEF

JAMAICA-3100 (-17), Health Services

Objective: To study health problems, needs, resources, and cost of public health services; and to prepare and develop a national health plan within the framework of the

plan for social and economic development of the country.

Probable duration: 1963-1970.

Assistance provided: 1 medical adviser; 4 short-term consultants and advisory services by the nurse educator assigned to project AMRO-6301; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Environmental sanitation (vector control)	Puerto Rico, United States of America	4
1	Enteric diseases (bacteriology)	United States of America	¾
1	Epidemiology	Ditto	12
1	Food control	Ditto	4
1	Health statistics	Canada, United States of America	6
2	Organization of medical teaching (pathology)	United Kingdom	12
2	Administration of health services	Trinidad	2½

Work done: The Ministry of Health continued programming the regionalization of health services, under which 5 regional offices were created and the first of them was set up in Montego Bay. Nine Governing Boards were operating independently, and only the board of Bellevue Mental Hospital remained to be constituted, pending amendment of the Law on Mental Hospitals. The communicable disease reporting system was revised and the statistics section in the Ministry strengthened by a personal increase and the installation of an IBM machine in the Civil Registry Office. The 10 officials trained in statistics were assigned as follows: 1 to the Ministry, 3 to the vital statistics unit of the Civil Registry Office, and 6 to 4 hospitals.

Steps to increase physical facilities included starting the construction of the Montego Bay and of May Pen Hospitals; the opening of 2 new health centers; the setting up of 1 orthopedic ward in Spanish Town Hospital, 1 first aid post at Long Bay-Portland, and 1 cytology laboratory in the Health Ministry. Integrated health care centers served an average of 500 persons daily.

The trachoma study, conducted in coordination with the WHO reference laboratory, revealed the presence of the disease in children.

Workshops for hospital secretaries were held as a step toward the improvement of hospital administration. Preparations were begun for the First National Health Planning Course and the Second Intermediate Course in Administration.

PAHO/RB, WHO/RB

UNICEF

JAMAICA-4300, Mental Health

Objective: To prepare a national mental health program, which will include curative and preventive services and the training of personnel, and to develop it as an integrated part of the general health services of the country.

Probable duration: 1964-

Assistance provided: 1 short-term consultant and advisory

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services by Headquarters staff; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Hospital administration (mental health)	United States of America	4
1	Nursing education (psychiatric nursing)	Canada	4

Work done: The work performed was analyzed and a new estimate of the situation was prepared; recommendations were formulated for implementation of the national mental health plan.

The Government established 7 psychiatric clinics in as many rural hospitals.

PAHO/RB

JAMAICA-4507, Radiation Protection

Objective: To initiate a radiation protection service on a national scale, in order to cope with the overall problem of radiation exposure, both occupational and of the general public.

Probable duration: 1966-1968.

Assistance provided: Advisory services by Headquarters specialized personnel.

Work done: The Government and the Organization signed the Letter-Agreement in November and the project was scheduled to be initiated in 1967.

JAMAICA-4509, Radiation Surveillance

Objective: To carry out a milk surveillance program by investigating the milk itself, the grasses and forage upon which the cattle feed and the soils in which the grasses grow; and to investigate the effect of rainfall, altitude, and other physical factors upon the fallout of Cesium-137 and its uptake by grasses, cattle, and ultimately by man.

Probable duration: 1966-1968.

Assistance provided: Advisory services by Headquarters specialized personnel.

Work done: The Government and the Organization signed the Letter-Agreement in November. The Organization reached an informal agreement with the Institute of Environmental Medicine of New York University Medical Center for the Institute to provide the necessary consultant services and laboratory analytical facilities to carry out this project.

JAMAICA-6201 (-4), Department of Preventive Medicine (UWI)

Objective: To strengthen the teaching program of the Department of Preventive Medicine of the University of the West Indies; and to expand the University's health statistics program in order to provide training for the Caribbean Area.

Probable duration: 1962-1967.

Assistance provided: 1 statistician, 1 short-term consul-

tant, and advisory services by Zone I Office personnel; a grant; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical education pedagogy (home care)	United States of America	2
1	Ditto (microbiology)	Canada	12
1	Public health administration (biostatistics)	United States of America	10½

Work done: Plans were made to expand the activities of the Department of Social and Preventive Medicine of the University of the West Indies.

The second 4-month health statistics training course for paramedical personnel was begun on 19 September with 27 students from British Honduras and the Caribbean countries and territories.

PAHO/RB, WHO/RB

JAMAICA-6300 (-12), Nursing Education

Objective: To improve basic nursing education; and to organize advanced courses for instructors and service supervisors.

Probable duration: 1960-1967.

Assistance provided: Advisory services by the nurse assigned to project AMRO-6301.

Work done: Surveys were carried out of the nursing services provided by the Kingston Public Hospital and the Bellevue Hospital, as well as of the course of studies of their respective Schools of Nursing. On the basis of the findings, first steps were taken to plan a new curriculum in basic nursing.

At year's end this project was integrated into Jamaica-6301.

JAMAICA-6301 (WIF-12), Advanced Nursing Education (UWI)

Objective: To strengthen basic nursing education in the Caribbean area through the preparation of nursing instructors in the University of the West Indies.

Probable duration: 1965-1968.

Assistance provided: 1 nurse educator, and advisory services by the nurses assigned to projects AMRO-3201 and -6301.

Work done: On 3 October the University of the West Indies began conducting a 15-month course which offers a choice in specialization—as teachers for schools of nursing or nursing administrators for hospitals and health agencies. Of the 16 students enrolled in the course, 8 were from Jamaica and 8 from the other territories; 9 of the students elected to specialize in teaching.

A 4-month inservice education program was initiated, in August, to teach 19 ward sisters how to cope with traditional obstacles to the improvement of the care of patients in hospitals in Jamaica.

The first full-time tutor to the Children's Hospital was appointed to teach the pediatric nursing course designed for students of the Bellevue Hospital School of Nursing, and 2 new tutors were appointed to Bellevue Hospital

to implement the School's new curriculum in psychiatric nursing.

WHO/RB

MEXICO-0200 (-53), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1973, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 medical adviser (half of the year), 1 medical officer, 1 malariologist, 1 sanitary engineer, 1 sanitation inspector, and consultant services by personnel of project AMRO-0200; and antimalaria drugs.

Work done: House-spraying carried out amounted to 3,714,522. Of the 1,609,460 blood smears examined, 11,441 were positive and 1,158 of them were found in consolidation-phase areas.

Activities in this program continued restricted by limited financial resources and were aimed at preventing, insofar as possible, deterioration in the malaria situation until funds could be made available for the attack measures technically required. It was not possible to put into operation the 6-year plan designed in 1965 and a new plan of operations, short of the 6-year plan but including intensive attack operations in the Pacific coast problem area and some increase in case-detection in the consolidation areas, was designed and was under consideration.

PAHO/SMF, WHO/UN-TA

UNICEF

MEXICO-0201, Malaria Eradication in Problem Areas

Objective: To investigate the utility of combinations of attack measures, applied by multipurpose personnel, in limited areas, for interrupting the transmission of malaria in areas of persistent transmission.

Probable duration: 1965-1968.

Assistance provided: Advisory services by staff assigned to other malaria projects in the country, and a grant to help defray local project costs.

Work done: Field operations of the Plan of Individual Responsibility in Limited Areas (PRIAL) were begun in January and progressed smoothly. More blood smears were collected than had been anticipated and the local laboratory facilities were unable to keep pace. As a result, blood slides were sent to the Central Laboratory, in Mexico City, which delayed the early treatment of some cases. Additional microscopists were provided for field operations in order to correct this defect.

WHO/RB

MEXICO-0400 (-38), Tuberculosis Control

Objective: To carry out a series of epidemiological surveys in selected areas of the country; and to establish in the State of Querétaro a demonstration area to show

the applicability and effectiveness of tuberculosis control measures.

Probable duration: 1960-1968.

Assistance provided: Advisory services by personnel of the Zone II Office; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Tuberculosis (laboratory methods)	Venezuela	1
1	Ditto (BCG)	Denmark, France, Hungary, United Kingdom	3

Work done: Activities were completed in the Querétaro verification area. Plans were initiated for undertaking demonstration activities in the areas with the highest prevalence of the disease, particularly in the Federal District and some southeastern states, as well as to begin a broad BCC vaccination campaign among preschool and school-age children in the country.

WHO/UN-TA

UNICEF

MEXICO-0500 (-29), Leprosy Control

Objective: To develop a national leprosy control program based on modern methods and techniques.

Probable duration: 1960-1968.

Assistance provided: Advisory services by the epidemiologist assigned to project AMRO-0102.

Work done: As of 30 June there were 13,748 leprosy cases registered. This information applies only to the Dermatology Centers and Clinics that provided data. Of this total number of cases the clinical forms were the following: lepromatous, 7,670; tuberculoid, 2,787; and indeterminate, 3,291. Registered contacts amounted to 25,898, of which only 12,706 were under surveillance.

From January to June, 422 new cases were detected in the Dermatology Centers and Clinics that supplied data. Of these cases, 202 were lepromatous, 103 tuberculoid, and 117 indeterminate; 382 patients were over 15 years of age, and 241 were of the male sex. During the same period the following cases of physical disability were notified: dermatrophic, 32; miotrophic, 17; and osteotrophic, 22.

UNICEF

MEXICO-0700, Control of Paralytic Rabies

Objective: To study the possibilities of establishing a project for research in bovine paralytic rabies.

Probable duration: 1966.

Assistance provided: 2 short-term consultants.

Work done: At the request of the United Nations Development Program the Pan American Sanitary Bureau provided 2 consultants to form part of a FAO/WHO mission which carried out a study of the problem of bovine paralytic rabies in Latin America and of research requirements in that field. The mission visited Argentina, Brazil, Mexico, Trinidad and Tobago, United States of America, and Venezuela. The report of the mission was evaluated and approved by the Operations Department of the United

VIII. PROJECT ACTIVITIES

Nations Development Program, and in October the latter's Technical Advisory Committee approved the application submitted by the Government for the establishment of a research project on this disease.

WHO/OF

FAO, UNDP

MEXICO-0701, Rabies Control

Objective: To produce, at the Institute of Virology of the Ministry of Health and Welfare, human rabies vaccine made from nerve tissue of unweaned mice.

Probable duration: 1966-

Assistance provided: Advisory services by Headquarters personnel; and laboratory equipment.

Work done: The Institute of Virology initiated the preparatory and experimental phase for the production of rabies vaccine from unweaned mice. The PASB undertook negotiations for providing the Institute with 1 Dill machine for ultraviolet radiation, which would permit the production of vaccine in large quantities.

WHO/RB

MEXICO-2101, Research in Sanitary Engineering

Objective: To develop the potentialities of the School of Sanitary Engineering (National Autonomous University of Mexico) for applied research in matters of local and national interest bearing on water supply, sewage disposal, and environmental sanitation in general.

Probable duration: 1966-

Assistance provided: 2 grants to the School of Sanitary Engineering, consultant services by Headquarters professional personnel and by the sanitary engineer assigned to project AMRO-2102.

Work done: An inventory of the research facilities available at the National Autonomous University of Mexico and at the University of Nuevo León was prepared and distributed to other universities, in all the countries of the Americas, to serve as a reference guide for the gathering of similar data. Research was undertaken on the utilization of plastic pipe, oxidation ponds, and hydraulic flocculators.

PAHO/RB

MEXICO-2200 (-39), Water Supplies

Objective: To plan a national public water supply program.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer, 2 short-term consultants, and advisory services by professional personnel from Headquarters, the Zone II Office, and project AMRO-2208.

Work done: The reorganization of the various Government agencies (begun in 1965) was completed, and the

Ministry of Health and Welfare was assigned responsibility for water supply and sewerage services in rural communities of less than 2,500 population. The Ministry of Hydraulic Resources will continue in charge of urban services. The administrative structure of the Department of Water Supply and Sewerage in the latter Ministry was completely revised and the operations and maintenance departments were elevated in importance. Toward establishing water supply on a self-supporting economic basis, new rates were applied in a few key cities, and the Water Rates Committee was enlarged and established on a permanent basis.

Waterworks were being built in 42 cities, to serve a population of 1,050,000 (1960 census) at a cost of Mex\$105 million (US\$8.4 million); 11 of them were finished and put in use, serving 381,000 persons.

Sewerage works were under construction in 7 cities, to serve 613,000 persons at a cost of Mex\$42.3 million (US\$3.4 million); 3 works serving 450,000 persons were completed.

The rural water supply program had work in progress on 130 systems to serve 140,000 persons at a cost of Mex\$21.2 million (US\$1.7 million).

A plan for construction of additional waterworks in 1967-1970 and for internal financing of the program was formulated. This program would make it possible for Mexico to achieve the urban water supply goals set in the Charter of Punta del Este.

National and international staff labored to find a solution to complex problems in the treatment plant of the city of Mérida and discussed various aspects of the water fluoridation program in the Federal District.

The First National Symposium on Water Supply and Sewerage was held in April, with 200 delegates from all levels of Government in attendance. The first Short Course on Public Relations and Community Organization was held in August for 42 professionals from Government and from construction firms.

PAHO/CWSF

MEXICO-3100, Health Services

Objective: To obtain the services of short-term consultants for the study of specific problems in specialized fields of health.

Duration: 1966.

Assistance provided: 2 short-term consultants, specialized in accident prevention.

Work done: One of the consultants studied the accident prevention activities program of the Ministry of Health and Welfare as well as field activities in this area and prepared a report containing 11 basic recommendations relating to training, investigation of accidents, program administration and advisory services to other Government agencies. The other consultant assisted the health authorities for 2 weeks to achieve objectives of the national accident prevention campaign, and to initiate the planning of activities.

PAHO/RB

MEXICO-3101 (-15), State Health Services

Objective: To improve the organization and coordination of health services at the regional and local levels.

Probable duration: 1954-1966.

Assistance provided: During the 12 years that this project was in operation the Bureau contributed: medical advisers, sanitary engineers, public health nurses, health inspectors, and the advisory services of professional staff from Headquarters and Zone Office II; 10 fellowships of 1 to 10 months, for studies abroad, awarded from 1961 to 1965, and the following fellowships in 1966:

Awards	Field of study	Place of study	Months
1	Accident prevention	United States of America	1
1	Protection against radiation hazards in industry	Ditto	5
1	Public health administration	Chile	3
1	Venereal disease control	United States of America	1

Work done: This project was terminated owing to a change in objectives. Originally aimed at strengthening the maternal and child health services in 7 states, it was subsequently extended to other fields of public health throughout the country. In 1963 a National Department of Nutrition Programs was established to promote and conduct activities for the socioeconomic improvement of communities. Some of the authorized activities helped to set off economic and social changes and to improve community development to the benefit of 4,549 localities.

The health personnel working in the 37 community development administrative zones included 37 administrators, 138 social workers, 77 nutrition auxiliaries, and 66 warehouse workers.

Nursing activities were aimed chiefly at studying nursing needs and resources, as well as at promoting the organization and development of services in this field, for the purpose of training professional, technical, and auxiliary personnel.

Toward the last years of the project it could be seen that considerable headway had been made in the field of statistics with the improvement of the system for the reporting analysis, and transmittal of statistics data.

At the end of 1966 there were 2,551 health care units with 21,472 beds in the states and territories of the country. The construction rate can be gauged by the following figures: 39 structures with a total of 384 beds were completed in 1959, 134 with 1,848 beds in 1960, 415 with 1,798 beds in 1961, 320 with 2,769 beds in 1962, 376 with 2,162 beds in 1963 and 196 with 1,449 beds in 1964, totaling 1,480 structures with 10,410 beds built in the course of the 6 stated years.

The National Department of Coordinated Public Health Services of States and Territories, which in late 1966 was entrusted with the application of the country's health programs through the general health services, recorded the

following accomplishments in sanitation during the same period:

Activities	Number
Health districts worked	60
Communities worked	948
Inhabitants benefited	366,435
Water supplies:	
Springs protected	81
Wells drilled	385
Wells protected	921
Pumps installed	1,038
Storage tanks built	168
Meters of pipeline installed	122,171
Hydrants installed	627
Home connections installed	3,045
Home baths built	403
Home laundries built	659
Water units built	129
Excreta disposal:	
Latrines installed	32,076
Septic tanks built	237
Meters of drainpipe installed	40,193
Connections to drainpipes	762
Housing improvement:	
Homes improved	10,363
Kitchens improved	1,390
Square meters of floor built	286,954
Square meters of wall built	162,851
Square meters of plaster coating applied	469,974
Square meters of walls painted	439,223
Square meters of roofs built	156,534
Doors and windows installed	12,415
Public service buildings:	
Rural centers adapted	256
Schools improved	277
Total Government investment	Mex\$31,880,789.94

Training activities under this project between 1958 and 1965 included the following courses: 7 on regional public health administration (6 months), for 166 physicians; 4 on health orientation (2 months), for 60 physicians; 1 in health-center administration (4 months), for 19 students; 5 in regional public health service administration (6 months), for 33 nurses; 3 in teaching (6 months), for 59 nurse instructors; 4 of orientation in public health nursing (2 months), for 60 nurses; 75 in auxiliary nursing (2 to 6 months), for 1,555 students; 1 in public health (6 months), for 14 laboratory assistants; 1 in dental hygiene (1 month), for 30 students; 13 in sanitation (3 months), for 242 students; 3 in community development (6 to 10 months), for 68 students; 5 in nutrition (3 months), for 120 students; 1 course (2 months) for 20 social workers; and 1 course in drilling equipment operation (2 months), for 7 students.

WHO/RB

UNICEF

MEXICO-3102 (-18), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics	Chile	3
1	Laboratory services (smallpox)	Brazil	¼

VIII. PROJECT ACTIVITIES

Awards	Field of study	Place of study	Months
1	Ditto (vaccine production)	Canada, United States of America	1
1 ¹	Medical care administration (hospital administration)	Puerto Rico, United States of America	6
1	Medical use of radioactive isotopes	Chile	7
1	Public health administration	United States of America	4

¹Funded under Mexico-3500: WHO/UN-TA.

WHO/RB

MEXICO-3103 (-25), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Air pollution control	France, Germany, Switzerland, United Kingdom, United States of America	2
1	Enteric diseases (bacteriology)	United States of America	3¼
1	Public health administration	Argentina, Chile, Panama, Peru, Venezuela	1½
1	Sanitary engineering teaching (radiation protection in industry)	United States of America	1½

PAHO/RB

MEXICO-4200 (-23), Nutrition

Objective: To develop a nationwide nutrition program using the resources of the National Institute of Nutrition, including surveys to learn the situation in the various regions; and to train professional and auxiliary personnel.

Probable duration: 1959-1967.

Assistance provided: The following fellowships:

Awards	Field of study	Place of study	Months
1	Food analysis	United States of America	12
1	Public health nutrition	Guatemala	2½

Work done: Construction was begun on a new building for the National Institute of Nutrition. The director of the Institute and the chief of Zone II Office discussed the possibility of using the Institute's facilities to provide nutrition training for Latin American physicians, for which PAHO would provide assistance.

WHO/UN-TA

FAO, UNICEF

MEXICO-4600, Industrial Hygiene

Objective: To strengthen the program of industrial hygiene and air pollution control in the light of the increasing problems resulting from expanding industrial development.

Probable duration: 1966-

Assistance provided: Consultant services by the adviser on industrial health assigned to project AMRO-4600 and by Zone II Office professional staff.

Work done: The Ministry of Health and Welfare took preliminary steps with a view to planning an air pollution program.

The laboratories of the Bureau of Industrial Hygiene acquired additional equipment and staff. Field work was expanded.

MEXICO-6100 (-30), School of Public Health

Objective: To develop and broaden the scholastic and practice areas of the teaching program of the School of Public Health of the Ministry of Health and Welfare.

Probable duration: 1954-

Assistance provided: Advisory services by Headquarters and Zone II Office personnel; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Organization of public health teaching (sanitary engineering)	Argentina, Chile, Peru, Venezuela	1¾
1	Ditto (epidemiology)	Brazil, Chile, Colombia, Venezuela	1½

Work done: The pertinent authorities and international personnel discussed the School's teaching programs on environmental sanitation and epidemiology.

WHO/RB

MEXICO-6200 (-32), Medical Education

Objective: To strengthen medical education, with emphasis on the teaching of preventive and social medicine, by improving the training of medical school teachers and researchers and the pedagogical approach to the teaching of medicine.

Probable duration: 1958-

Assistance provided: 4 short-term consultants; a grant; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical education pedagogy	Brazil, Colombia, El Salvador, Venezuela	1½
1	Ditto	France, United Kingdom	1
1	Ditto (human genetics)	United States of America	12
1	Ditto (physiology)	Brazil, Chile, Colombia, El Salvador, Puerto Rico	2
1	Organization of medical education (laboratories in human relations and medical technology)	Uruguay	½

Work done: The School of Medicine of the National Autonomous University of Mexico revised the administration and organization of its medical education program. With a view to obtain maximum benefit of available resources, the Autonomous University of San Luis Potosí

made a study of the possibility of integrating in one place all the teaching of basic health sciences carried out at its various professional (medical and paramedical) schools.

A 2-week course entitled Laboratory of Human Relations and Medical Teaching was held at the University of Guadalajara, Jalisco, for 30 professors from various medical schools in the country.

The University of Nuevo León, Monterrey, had under study the possibility of establishing a faculty training center for medical schools in Latin America similar to the one being set up at the University of Antioquia, in Medellín, Colombia.

PAHO/RB, WHO/RB

RF

MEXICO-6300 (-14), Nursing Education

Objective: To improve basic nursing education; to prepare graduate nurses to serve as instructors; and to prepare nurses for the training of auxiliary nursing personnel.

Probable duration: 1958-1967.

Assistance provided: 2 nursing instructors and consultant services by the adviser on nursing assigned to project AMRO-3202; equipment and supplies; and four 1-month fellowships for the study of programmed instruction, in Mexico.

Work done: 57 nurses completed the 1-year teacher-training course and 16 completed the 1-year course in public health training; 15 nurses attended a course in psychiatric nursing, 15 others took a cardiology course, and 14 attended a 1-year course in physical therapy and rehabilitation.

In addition, 113 "nursing technicians" received training in 1-year courses, and 17 universities expressed interest in this type of course.

Furthermore, 360 nursing auxiliaries were trained in 3-month courses. A new curriculum was prepared and used in a second series of courses in which 180 students participated. In the second series, the 4 Mexican nurses who participated in the project assumed full-time responsibility in 4 of the 9 training centers during the last 3 months of the course. Toward the end of the year, cities were selected in 7 states in which to conduct nursing auxiliary courses in 1967.

PAHO/RB

MEXICO-6400 (-35), Sanitary Engineering Education

Objective: To strengthen the teaching of sanitary engineering at the Sanitary Engineering Center of the National Autonomous University of Mexico (Federal District), at the School of Civil Engineering of the University of Nuevo León (Monterrey) and at the School of Engineering of the University of Chihuahua.

Probable duration: 1961-1970.

Assistance provided: 1 sanitary engineer, 8 short-term consultants and advisory services by professional personnel of

Headquarters, of the Zone II Office, and of projects AMRO-2102 and -6400; 1 grant; and equipment and supplies.

Work done: 4 courses were held at the School of Engineering, Division of Postgraduate Studies, of the National Autonomous University of Mexico, on: design and operation of stabilizing pools, from 20 June to 2 July, for 16 students; design of water supply systems for small communities, from 26 September to 7 October, for 32 students; ground water, from 17 October to 5 November, for 24 students; and selection of pumping equipment for potable water, from 14 to 26 November, for 31 students. At the Postgraduate School of the School of Civil Engineering of the University of Nuevo León, 1 course was also held on research in leaking and metering in water supply systems, from 25 July to 6 August, for 22 students. At the Ministry of Hydraulic Resources, a symposium was held on problems of water supply and sewage, with 200 participants. The total number of persons trained at these courses and at the symposium was 325.

An agreement was signed by the University of Chihuahua and PAHO/WHO to extend to this University the benefits of the project and the corresponding programs were being prepared.

Bombas para agua potable (Scientific Publication PAHO 145) was reviewed and printed. This publication is an expanded version of the technical handbook of the course on potable water pumps held in December 1963.

Two sanitary engineering research projects were initiated at the National Autonomous University of Mexico: 1 on stabilization pools and the other on the behavior of a water flocculator.

PAHO/RB, PAHO/SFHP, WHO/RB

MEXICO-6500 (-34), Teaching of Public Health in the Schools of Veterinary Medicine

Objective: To strengthen the teaching of public health and preventive medicine in the schools of veterinary medicine of the country.

Duration: 1958-1966.

Assistance provided: 1 short-term consultant (1965) and advisory services by professional personnel of Headquarters, the Zone III Office and the El Paso Field Office; teaching materials (audiovisual aids and biological reagents); and technical publications.

Work done: At the Schools of Veterinary Medicine of the National Autonomous University of Mexico, University of Juárez (Villahermosa, Tabasco), University of Veracruz, University of Guadalajara (Jalisco), and of the University of Tamaulipas (Ciudad Victoria), studies were undertaken to evaluate professional training programs, and, when necessary, the teaching of public health and preventive medicine was reorganized. Basic data relating to the current status of each school were collected with a view to evaluating its potential technical development and to making any necessary changes.

In the staff-training field various teaching courses were held, dealing principally with the epidemiological aspects of the control of zoonoses.

In collaboration with the Pan American Foot-and-Mouth Disease Center and the Pan American Zoonoses Center, the

VIII. PROJECT ACTIVITIES

Organization provided biologicals for diagnosis and research to the research centers of the above-mentioned schools.

NETHERLANDS ANTILLES-3101 (-2), Fellowships for Health Services

One 10-month fellowship to study public health nursing in Jamaica.

PAHO/RB, WHO/RB

NICARAGUA-0200 (-1), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 medical officer, 1 sanitary engineer, and 3 sanitation inspectors, and advisory services by personnel of project AMRO-0200; antimalaria drugs and a limited amount of other supplies and equipment.

Work done: Financial difficulties limited the activities of the program and brought about an increase in malaria incidence; consequently some consolidation areas were returned to attack phase. House-spraying totaled 109,931. Collective treatment was continued in a population of about 12,000. Of the 254,508 smears examined, 15,647 were positive. Personnel of AMRO-0200 collaborated with the general health services on the development of better coordination between the latter and malaria eradication campaigns and stimulated the participation of the health services in eradication activities, particularly those concerned with surveillance.

The loan agreement between the Government of Nicaragua and the United States Agency for International Development was signed.

PAHO/SMF, WHO/RB

AID, UNICEF

NICARAGUA-0400, Tuberculosis Control

Objective: To organize in the Departments of Chinandega and León a demonstration area for obtaining epidemiological data, applying and evaluating practical methods of tuberculosis control, and training medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1964-1968.

Assistance provided: Advisory services by personnel assigned to projects AMRO-0400 and -0403 and by personnel of the Zone III Office.

Work done: All the health services continued to participate in antituberculosis activities.

In the demonstration area, work was carried out in 114 urban and rural areas.

Training was initiated for a group of the Mobile Tuberculosis Unit in execution of the plan for the study of the administration of BCC without prior tuberculin testing; a group of some 150 persons who had not been vaccinated previously were used for the tests.

The activities carried out during the year and the respective percentage-wise achievements of the goals established were: 17,209 (19%) tuberculin tests; 31,274 (81%) BCG vaccinations; 19,742 (38%) photofluorographies and X rays; and 346 (16%) sputum tests. During the same period, 309 new cases (29% of the goal) were detected and placed under treatment, and 572 persons who had been undergoing treatment in previous years continued to receive it; there were 405 contacts in prophylactic treatment (15% of the goal).

In other parts of the country 96,274 tuberculin tests were administered, 237,072 persons were vaccinated with BCG and 24,268 photofluorographies and X-ray examinations were given; 517 cases were detected.

In cooperation with the Ministry of Public Health of Nicaragua, the Brothers' Brothers Foundation of the First Baptist Church of Cleveland, Ohio (U.S.A.) vaccinated 130,515 persons (part of the 237,072 mentioned above) against smallpox and poliomyelitis, and administered BCG vaccinations with jet injectors. Of the 130,515 persons, only 127,672 were vaccinated against smallpox, 114,627 were given BCG vaccination, and 64,644 were given oral vaccinations against poliomyelitis.

UNICEF

NICARAGUA-2200 (-10), Water Supplies

Objective: To establish a central agency responsible for water and sewerage services; and to plan a national water supply program.

Probable duration: 1962-1967.

Assistance provided: Advisory services by the engineer assigned to Nicaragua-3100 and by professional personnel from Headquarters and from project AMRO-2203.

Work done: The recommendations formulated (1965) by a group of PASB management consultants were being implemented very successfully and the Managua Water Supply Authority was on its way to becoming a well organized agency. A report recommending that a reorganization-study commission be established within the National Department of Municipal Services was prepared and submitted to the director of Municipal Services. Work was completed at the Managua water supply system with the assistance of a loan provided by the International Bank for Reconstruction and Development and the new treatment and pumping plants were inaugurated during the year.

In addition, 23 design studies were completed, of which 11 were urban and 12 rural. Seventeen new water supply systems were built, of which 13 serve an urban population of over 45,000 and 4 serve a rural population of 4,500. Seven waterworks were overhauled and enlarged at a cost of US\$134,000. A loan request for financing a 3-year program to supply water to 54 rural areas at a cost of US\$1.2 million was completed and submitted to the Inter-American Development Bank.

Two short courses were held in the country, each with 49 students. A 4-week course on ground water and a 2-week course on stabilization ponds were conducted in November.

NICARAGUA-3100 (-3), General Health Services

Objective: To plan and carry out a National Health Plan that will serve as a basis for the planning and execution of specific programs.

Probable duration: 1963-1970.

Assistance provided: 1 medical adviser (the PAHO/WHO Country Representative), 1 sanitary engineer, 1 public health nurse, and advisory services by the nurse assigned to project AMRO-3203; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics	Chile	3
1	Dental public health	Brazil	11
2	Environmental sanitation (water supply systems)	Colombia	2
1	Hospital administration	Ditto	7
1	Ditto	Mexico	10½
1	Laboratory services	Brazil	11
1	Leprosy	Ecuador, Venezuela	4½
1	Medical pedagogy	Honduras	½
1	Medical records librarianship	Costa Rica	4¼
1	Nutrition (bromatology)	Guatemala	6
1	Public health administration (occupational health)	Chile	9½
1	Sanitary engineering	Guatemala	11

Work done: In January the Ministry of Public Health defined a national health policy, on the basis of which an increased budget was obtained for the sector. Working relations for program coordination were established with the National Social Welfare Board, the Social Security Institute, the Ministry of Agriculture and Livestock, the Planning Board of the Ministry of Economic Affairs, the Sanitation Division of the National District, the Nicaraguan Housing Institute, the Institute of Agriculture, and the Atlantic Coast Development Commission. A cancer detection section was established at the national level and a serology laboratory at the regional level. A printing department was also established. Five health centers were installed in the localities of El Sauce, Camalapa, El Rama, Camoapa and El Viejo, where they will serve a population of 53,224. The construction of 1 health center in Moyagalpa and 1 in Cinco Pino was completed, and construction of 5 others was begun. The first yearly evaluation of the 10-year health plan and the national nutrition survey were completed, and the data were being tabulated.

The supplementary nutrition program was conducted among 47,256 persons; 239,774 pounds of powdered milk were distributed. The targets established for some activities and percentages of their fulfillment were:

Activities and norms	Targets (1966) (year)	Percent accomplished (first 9 months)
Calls:		
Prenatal	45,000	57.7
Pediatric	180,000	56.4
General (adults)	150,000	149.9
Dental	20,000	17.3
Syphilis, diagnosis and treatment	5,000	24.8
Gonorrhoea	5,000	27.6
Other venereal infections	1,000	12.6
Leprosy contacts examined	500	242.0

Activities and norms	Targets (1966) (year)	Percent accomplished (first 9 months)
Lepromin reactions	1,000	37.0
Treatment of intestinal parasitosis	50,000	119.9
Vaccinations:		
Smallpox	328,263	54.2
DPT	255,544	36.7
Poliomyelitis	255,544	81.0
TAB	356,014	35.3
Dogs destroyed	30,000	52.0
Laboratory tests for syphilis	60,000	52.1
Coprological tests	80,000	79.4
Home visits by nurses	65,000	71.6
Mothers' clubs	70	157.1
Interviews by nurses	90,000	79.1
Educational talks	25,000	77.9
Group discussions	1,500	312.2
Visits by inspectors to homes and establishments	150,000	115.1
Health certificates for food handlers	5,000	80.6
Latrine construction	6,000	40.5
Well construction	20	50.0

Training activities under this project included the following courses: 4 in auxiliary nursing (6 months), for a total of 38 students, and 2 weeks of inservice training for 27 employees; 1 in hospital statistics (4 weeks), for 51 administrative employees of hospitals and health centers; 1 in sanitation inspection (6 months), for 25 elementary school graduates; 1 in entomology (6 days), for 9 sanitation supervisors; and 3 in venereology (4 days each), for 76 physicians. The basic nursing course (10½ months) was continued with a total of 101 students, and a seminar on hospital nursing services was attended by 50 nurses.

PAHO/RB, WHO/RB, WHO/UN-TA UNICEF

NICARAGUA-3101 (-7), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Industrial hygiene	Chile	6
1	Laboratory services (bromatology)	Panama	6
1	Ditto (food and drug control)	Ditto	¾
2	Sanitary engineering	Guatemala	11

PAHO/RB

NICARAGUA-4200 (-11), Nutrition

Objective: To develop in a selected area of the country an applied nutrition program including education and training activities, promotion of the production of highly nutritious foods, and improvement of the nutritional status of pregnant women, nursing mothers, and preschool and school children.

Probable duration: 1962-

Assistance provided: Advice by INCAP personnel.

Work done: An evaluation of the Applied Nutrition Program pointed out some of the strengths and weaknesses of the program. More than 500 schools were included in the supplementary feeding programs.

VIII. PROJECT ACTIVITIES

A nutrition survey was conducted with the assistance of INCAP and the Office of International Research of the U.S. National Institutes of Health and the major nutrition problems of the country were identified.

NICARAGUA-4800, Medical Care Services

Objective: To study the possibility of coordinating the hospital resources of the National Board of Social Welfare and those of the National Institute of Social Security.

Duration: November 1965-March 1966.

Assistance provided: 1 short-term consultant in 1965 and another in 1966.

Work done: In 1965 the Organic Law on Social Security was revised, its regulations were studied, and a report with the pertinent conclusions and recommendations was prepared.

In 1966 a study was made of the hospitals in the country, including those of the National Institute of Social Security, and plans were drafted for coordinating the services rendered by the Social Security with those of other national agencies. Hospitals regulations were also written which could be adopted by every hospital and which lay the bases for the organization of regional hospital systems.

PAHO/RB

NICARAGUA-6200, Medical Education

Objective: To strengthen medical education by improving the training of teachers of basic sciences and preventive and social medicine.

Probable duration: 1965-

Assistance provided: 2 short-term consultants; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical education (pharmacology)	Chile	3
1	Medical records librarianship	Colombia	5¼
1	Medical education pedagogy (anesthesiology)	Venezuela	12
1	Pedagogic methods	Costa Rica	½

Work done: An evaluation was made of the medical education program of the National Autonomous University, particularly with regard to internship assignments. A university-wide development plan was being prepared.

PAHO/RB

NICARAGUA-6400, Sanitary Engineering Education

Objective: To strengthen sanitary engineering education and organize and develop short courses in this field at the School of Physical and Mathematical Sciences of the National University of Nicaragua.

Probable duration: 1965-1970.

Assistance provided: 2 short-term consultants and advisory services by professional personnel of Headquarters, of the Zone III Office, of project AMRO-6403, and of other projects in the country.

Work done: 2 short courses were held: 1 on ground water, from 11 July to 6 August, for 27 students, and the other on oxidation pools, from 31 October to 12 November, for 22 students.

The National Social Security Service approved a grant to help meet the cost of an intensive course on operations and the maintenance of equipment in hospitals, to be held at the University in 1967.

PAHO/RB, WHO/RB

NICARAGUA-6600, Dental Education

Objective: To organize a Department of Preventive and Social Dentistry in the School of Dentistry of the National Autonomous University; and to coordinate the activities of the Ministry of Public Health with those of the School of Dentistry.

Probable duration: 1966-1967.

Assistance provided: 1 short-term consultant.

Work done: The University established the Department of Preventive and Social Dentistry. A study was made of the dental services of the Ministry of Public Health, a plan of activities was drafted, and an orientation course on public health was conducted for the Ministry dentists. A plan was later worked out for coordinated operations between the Ministry and the Department.

WHO/RB

PANAMA-0200 (-2), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 medical officer, 1 sanitary engineer, 1 entomologist, and 3 sanitation inspectors; anti-malaria drugs and other supplies and a limited amount of equipment; and one 5½-month fellowship to study malaria, in El Salvador, Mexico, and Venezuela.

Work done: Activities were less than what had been scheduled for the year, due in part to insufficient funds. House-spraying totaled 392,451. Of the 97,525 blood smears examined, 3,664 (3.8%) were positive. This was about double the percentage of positives found in 1965.

Negotiations were in an advanced stage for provision of adequate financing for a 3-year attack to be carried out in conjunction with the intensive campaigns in the 5 Central American countries.

PAHO/SMF, WHO/MESA

UNICEF

PANAMA-0400, Tuberculosis Control

Objective: To develop in the provinces of the central region of the country a tuberculosis control program inte-

grated with the local health services; and to expand and improve the control programs in the other two regions, insofar as justified by the progress of the central region program.

Probable duration: 1963-1969.

Assistance provided: Advisory services by the adviser of project AMRO-0403.

Work done: The dispensaries and tuberculosis annexes kept 11,600 cases under control. The National BCG Vaccination Service administered tuberculin tests to 34,700 persons; 22,779 were prevaccination tests while 11,921 were postvaccination tests. Of the total number of tests 95.7% were read and 28.9% were positive. In various establishments in the Provinces of Los Santos, Panama, and Veraguas 46,993 lung X rays were taken and 295 pulmonary tuberculosis cases were detected.

UNICEF

PANAMA-0500 (-13), Leprosy Control

Objective: To study the problem of leprosy in the country; and to organize, conduct, and evaluate a national leprosy control program based on modern methods and procedures.

Probable duration: 1961-1967.

Assistance provided: Advisory services by the epidemiologist of project AMRO-0103 and the statistician of project AMRO-3503.

Work done: At the end of 1965 there were 155 leprosy cases under surveillance; 94 were hospitalized in the Palo Seco Hospital, Canal Zone, and 54 were receiving ambulatory treatment. During 1966, 4 new leprosy cases were detected. The number of contacts of ambulatory patients under surveillance was 477.

UNICEF

PANAMA-2200 (-9), Water Supplies

Objective: To organize a national water supply and sewerage authority; and to develop a national water supply program.

Probable duration: 1960.

Assistance provided: Advisory services by the engineer assigned to project Panama-3100 and by Headquarters and AMRO-2203 professional personnel.

Work done: In the urban water supply program, the preliminary study for a new treatment plant for the city of Panama, where the present plant will be adequate until 1970, was 95% complete. The study for the rapid sand-filtration plant in Santiago was completed and a loan was submitted to the Inter-American Development Bank in April. Studies and loan applications for distribution-system improvements in 9 localities were completed in April. The David filtration plant was completed and put in service providing 6 mgd of water for a design population of 60,000, expected to be reached within 20 years (present population 40,000). The improvements in the Panama City distribution system, costing US\$7.5 million, were 70% complete, and the Concepción elevated tank and distribution system were put in service.

In the rural water supply program, studies on 28 new systems and for improvement and enlargement of 9 systems were completed as planned and loan applications were submitted to IDB.

A new loan application to provide waterworks for small urban communities and rural communities was submitted to the IDB.

In the urban sewerage program, construction work in Panama City was 85% complete, and design of the remaining works needed was 40% complete. Construction work was started in Colón. The design for the Chitre works was completed and a loan application was submitted to IDB.

In the field administration, the National Water Supply and Sewerage Institute (IDAAN) began implementing some of the recommendations made by PASB staff and favorable results, such as increased applications for services and improved collection of fees, were produced. A bimonthly public relations bulletin was established.

A short course for engineers was held with 14 students attending, and a 16-hour program on developing ideas was held for 14 other employees.

PANAMA-3100 (-1), National Health Services

Objective: To prepare and put into practice a national health plan; to train the professional and auxiliary personnel needed; and to reorganize, improve, and extend health services coverage throughout the country.

Probable duration: 1952-1967.

Assistance provided: 1 medical adviser (the PAHO/WHO Country Representative), 1 sanitary engineer, 3 short-term consultants, and advisory services by the nurse assigned to project AMRO-3203; and supplies and equipment.

Work done: A decree was enacted which established the National Committee for Health Sector Planning, with representation of the Ministry of Labor, Social Welfare and Public Health, the National Water Supply and Sewerage Institute, the legislative branch, the University, the Social Security Fund, and the National Welfare Lottery. Two vice-ministerhips were created in the aforementioned Ministry: one for Public Health and the other for Labor and Social Welfare. A hospital supervision office and a national cancer campaign office were organized in the Department of Public Health. The reclassification of public health personnel in civil service categories was completed.

A report was prepared on the fourth annual evaluation of national health services. The level of health organization in the Penonomé area was determined on the basis of the survey conducted in 1965, and similar activities were begun in La Chorrera.

Progress was made in the building or remodeling of health establishments, for both hospitalization and ambulatory patient care, and in organizing the Public Health Department warehouse, which supplies all the Department's health care establishments throughout the country.

The study and solution of mental health problems was emphasized and medical and social guidance services and patient care were offered at outpatient departments and hospitals. A national committee began the evaluation of

VIII. PROJECT ACTIVITIES

existing mental hospital facilities with a view to their improvement.

At the end of the year the study of a National Health Code bill was begun.

Activities in the Central Region were as follows: 166,456 medical calls were handled; there were 3,563 deliveries in institutions and 24,980 hospital discharges. A total of 5,552 doses of DPT and 6,839 doses of oral poliomyelitis vaccine were administered. Health inspections numbered 20,348. There were 20 new wells for a beneficiary population of 5,450 persons; 1,402 wells were repaired, and 1,170 latrines installed. Similar activities were carried out in other health regions of the country.

The year's courses related to this project were: 1 in venereal diseases (1 week), for 14 physicians; 1 in the recording of statistical data (4 weeks), for 45 secretaries and statistical auxiliaries; 4 in health planning (average 1 week each), for a total of 112 nurses and supervisors; 1 in sanitation inspection (6 months), for 13 students; 1 in basic laboratory techniques (12 months), for 8 bachelors of science; and 1 in auxiliary nursing (10 months), for 45 students.

See also project Panama-6300.

PAHO/RB, WHO/UN-TA

UNICEF

PANAMA-3101 (-7), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics	Chile	3
1	Environmental sanitation (water supply systems)	Colombia	2
1	Ditto	Colombia, Puerto Rico, Venezuela	1½
2	Health statistics	Colombia	6¼
1	Maternal and child health	Chile	1½
2	Ditto (nursing)	Ditto	1½
1	Ditto (statistics)	Ditto	1½
2	Medical pedagogy	Costa Rica	½
2	Ditto	Honduras	½
1	Medical records librarianship	Costa Rica	4¼
1	Ditto	Colombia, Puerto Rico, Venezuela	5¼
1	Nursing services	Guatemala	9
1	Sanitary engineering (ground water development)	Colombia	2½

WHO/RB

PANAMA-4200 (-11), Nutrition

Objective: To conduct an expanded nutrition program in a selected area of the country.

Probable duration: 1962-1968.

Assistance provided: Advice by INCAP and Headquarters personnel.

Work done: The Ministries of Health, of Education, and of Agriculture became more aware of nutrition problems affecting the 3 Ministries and achieved extension and

strengthening of the school health program and the school lunch program, and good coordination of purpose and effort. Some changes in dietary practices were becoming evident.

An evaluation of the Applied Nutrition Program, which at year's end included 15 schools with 733 teachers and 17,600 children in an area with a total population of 77,543, pointed out some strengths and weaknesses. The Plan of Operations was extended for another 2 years.

The distribution of locally produced Incaparina was under study.

INCAP personnel conducted at the National University a nutrition-credit course for teachers.

FAO, UNICEF

PANAMA-6200, Medical Education

Objective: To strengthen medical education by improving the training of teachers of basic sciences.

Probable duration: 1965-

Assistance provided: Advisory services by Headquarters personnel.

Work done: Discussions were held with the authorities of the School of Medicine of the National University of Panama on the administration and organization of the medical school program.

PANAMA-6300, Nursing Education

Objective: To evaluate the postbasic nursing education program offered by the National University of Panama; and to develop a curriculum for a collegiate program of nursing.

Probable duration: 1966-

Assistance provided: Advisory services by 1 of the short-term consultants (nurse) assigned to project Panama-3100.

Work done: With regard to the first objective of this project the study carried out showed that the University's postbasic education program, which had already graduated 22 students, is not an easy one. However, proof of student interest in this program is the fact that most of the 61 students currently enrolled, of which 15 will complete it this year, work full time during the day, attend classes in the evening, and use 1 of their free days each week and 10 days of their vacation for the laboratory experiences associated with each of the clinical nursing courses.

All students enrolled in the program completed the basic nursing program at the Santo Tomás Hospital, in Panama City, and some were granted transfer credits for courses taken at colleges or universities in other countries. Since 1963 all students, prior to admittance to the clinical nursing courses, are required to take a comprehensive examination consisting of: (1) General information from the areas of anatomy, physiology, and medical-surgical nursing; and, (2) Obstetric, pediatric, psychiatric, and public health nursing. The examination, twice revised on the bases of item analysis and of a review of student performance in clinical nursing, offers an excellent means for identifying areas of strength and weakness in the background of students. On the basis of student performance on this

test, a course in anatomy and physiology was added as a required subject.

Other highlights of the program are that the experiences with patients are carefully selected and the ward conferences preceding and following the care of patients are focused on nursing care; the clinical experience is closely related to the formal classes; and the methods of teaching are varied—lectures, seminars, case studies, anecdotal records, role playing, among others—and all are effectively used. Visual materials as well as nursing references in Spanish were limited. The presentation of the theses (which include bibliographies, graphs, pictures, and statistical data) was unusually good, particularly considering the undergraduate level of the students, but some indicated the need for assistance in the interpretation of statistical data, statement of problem, and importance of accuracy and consistency.

Faculty evaluation of the program brought forth the suggestions that a course offered by the School of Philosophy, Literature, and Education be substituted for a course of Principles and Methods of Teaching in Nursing and that greater emphasis should be placed on public health nursing experiences with mothers and children. An evaluation of the program by students made manifest their greater self-confidence in discussing with the doctors the nursing care of the patients as well as the students' satisfaction in the followup of patients after discharge from the hospital. According to the consultant's evaluation of the program, the University had selected a nucleus of well-prepared nurses on which to build a faculty, and the group was doing an excellent job, but there is an urgent need to send nurses abroad for study in clinical nursing programs at the masters level so that they may return to teach in the program at the University.

The Government decided to discontinue the School of Nursing of the Santo Tomás Hospital and carry out all nursing education at the School of Nursing of the National University, beginning in 1967.

PANAMA-6400, Sanitary Engineering Education

Objective: To organize and hold specific short courses on subjects relating to water supply programs.

Probable duration: 1965-

Assistance provided: Advisory services by professional personnel of Headquarters, by consultants assigned to project AMRO-6403 and to other projects in the country; and a grant to the University of Panama.

Work done: 2 intensive courses were held: 1 on the drilling of wells, from 2 to 23 July, for 32 students, and the other on pumps and pumping stations, from 4 to 16 July, for 18 students.

PAHO/CWSF

PANAMA-6600, Dental Education

Objective: To establish a School of Dentistry, including the designing of the plans for construction of the premises and the preparation of the curriculum for that School.

Duration: 1966.

Assistance provided: 2 short-term consultants.

Work done: The curriculum was prepared and the general bases for the operation of the School were established.

WHO/RB

PARAGUAY-0100, Communicable Diseases

Objective: To incorporate the control of communicable diseases into the regular activities of the services of the Ministry of Public Health and Social Welfare and, to that end, to develop a local plan of action adapted to the nature and magnitude of the problem in order to decrease the risks of infection, illness, incapacity, and death from these diseases.

Probable duration: 1965-1967.

Assistance provided: Advisory services by personnel of projects Paraguay-3100 and AMRO-0106 and -0506.

Work done: This program is being carried out in Health Area V, which includes the capital and its environs, and in part of Health Area I.

Subcommittees were formed to revise standards and procedures in the field of administration, the control of tuberculosis, leprosy, and venereal and acute and parasitic communicable diseases. These measures were placed at the disposal of the Health Centers that participated in the program. In addition, the data on leprosy and tuberculosis were updated and new forms were designed for gathering the information.

Studies were performed in both Areas to determine the prevalence of tuberculosis, by means of PPD tests and mass radiography. The vaccination campaigns were carried out using, chiefly, triple vaccine and BCG. Control of cases was maintained rather well, but field personnel was insufficient for the control of contacts.

Operations from January-October 1966 in Health Areas I and V yielded the following results in absolute figures and as percentages of targets for the year. Leprosy control: 464 cases detected (68% of expected target of 680), 441 contacts investigated (17% of 2,556), 2,278 home visits (167% of 1,360), and 439 visits to foci (32% of 1,360). Syphilis control: 1,157 cases detected (72% of 1,600), 1,970 home visits (61% of 3,200), 304 contacts located (11% of 2,816), and 36 contacts treated (0.6% of 5,632). Tuberculosis control: 767 cases were detected (42% of 1,800), 1,283 contacts were located (44% of 2,882), 83,474 tuberculin sensitivity tests were made (50% of 166,518), 33,325 BCG vaccinations were administered (44% of 75,489); there were 2,193 nurse visits (10% of 21,600) and 3,090 consultations (43% of 7,200), and 37,398 persons were X rayed in communities (47% of 80,000). Immunizations: Tetanus vaccine was administered to 32,017 school children (50% of 63,510) and 3,167 pregnant women (19% of 16,600), triple vaccinations (DPT) were given to 1,658 infants (11% of 14,460) and 4,257 children of preschool age (0.9% of 44,000), and smallpox vaccinations to 873 infants (5.8% of 14,971), 14,662 school children (43% of 34,105), and 30,200 adults (28% of 107,779).

In keeping with the plan of operations, special emphasis

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was placed on the training of personnel for the program. Local courses on the control of communicable diseases were conducted for 20 physicians, 20 nurses, 20 nursing aides and 27 health statisticians and auxiliaries. Other courses on the control of communicable diseases were conducted for 20 nurses and midwives, 16 nursing aides, and 7 laboratory technicians.

UNICEF

PARAGUAY-0200 (-1), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1961-1973, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 sanitation inspector; and anti-malaria drugs.

Work done: This program continued in preparatory phase because of lack of funds to launch the attack phase. However, arrangements for satisfactory financing for a 3-year period were far advanced.

An epidemic in the east-central region reached a slide-positivity rate of 27.4%. Of the 131,293 blood smears examined, 33,026 (25.2%) were positive and 717 of them were *Plasmodium falciparum* infections. During 1965, comparable figures were 82,848 smears and 6,732 (8.1%) cases. Some emergency spraying (6,993 houses) with dieldrin was carried out in a few localities.

Geographic reconnaissance was continued, in preparation for the initiation of the attack phase, now scheduled for 1967. Since reconnaissance has been in progress since 1961, sample localities were chosen for rechecking to ascertain the current reliability of the figures.

PAHO/SMF

UNICEF

PARAGUAY-0500 (-9), Leprosy Control

Objective: To incorporate leprosy control into the regular activities of the services of the Ministry of Public Health and Social Welfare, developing, to that end, a local plan of action adapted to the scope and nature of the problem, in order to decrease the risks of infection, illness, disability, and death due to leprosy.

Probable duration: 1966-

Assistance provided: Advisory services by the leprologist assigned to project AMRO-0506 and personnel assigned to other projects in the country.

Work done: According to the most recent available information, as of 31 December 1965 there were 4,085 cases of leprosy registered, with the following clinical forms: lepromatous, 2,006; tuberculoid, 1,157; indeterminate, 853; and nonspecified forms, 69. During that year, 223 new cases of leprosy were detected: 105 lepromatous, 64 tuberculoid, 45 indeterminate, and 9 whose form was not specified.

In 1966, plans were formulated for integrating the leprosy control program within the general health activities being carried out in the Health Regions.

UNICEF

PARAGUAY-0700, Veterinary Public Health

Objective: To initiate in animal health and sanitation services the planning and organization of health campaigns for the control of zoonoses in the country.

Probable duration: 1966-

Assistance provided: 2 short-term consultants and advisory services by personnel of the Pan American Foot-and-Mouth Disease Center.

Work done: A start was made in the planning of animal health programs that stress the aspects of organization, development, and financing of a National Foot-and-Mouth Disease Plan, with a view to formulating an application for a loan from an international credit agency.

With funds made available by the Inter-American Development Bank the Pan American Sanitary Bureau coordinated the financial feasibility studies of this project.

PAHO/RB

PARAGUAY-2200 (-19), Water Supplies

Objective: To plan and carry out a national water supply program.

Probable duration: 1961-

Assistance provided: Advisory services by the sanitary engineers respectively assigned to projects Paraguay-3100, AMRO-2106, and -2213.

Work done: Studies for the expansion of the Asunción water supply system and for a domestic and storm-waters sewerage were continued.

Studies for the provision of potable water to 7 cities of from 5,000 to 20,000 population were undertaken, but not completed because equipment for drilling exploration wells was not available. Steps were then undertaken to contract for the required drilling operations.

To comply with the goals set in the Charter of Punta del Este, studies are still required for an additional 85 communities. Technical assistance for making these studies was requested of the PASB.

PASB personnel collaborated with the ECLA mission in Paraguay in a study of the country's hydraulic resources, and reports dealing with the quality of surface and ground water and the adequate supplying of water for cities and industries were prepared.

PARAGUAY-3100 (-10) National Health Services

Objective: To plan a 10-year health program as an integral part of the national plan for economic and social development of the country; to develop integrated health services throughout the country; and to train professional and auxiliary personnel.

Probable duration: 1965-1970.

Assistance provided: 1 medical adviser (the PAHO/WHO Country Representative), 1 sanitary engineer, 1 public health nurse, 1 obstetrical nurse, and 1 statistician; a small amount of equipment and supplies; and 2 fellowships of 1½-month each to study tuberculosis (laboratory), in Argentina.

Work done: An evaluation was made of the work accomplished during the first year of the 1965-1966 two-year plan. Another plan was formulated for the period 1967-1968, with targets established on a more realistic basis in accordance with existing resources. The new 2-year plan emphasizes the regional program for the development of the new settlement areas and focuses largely on the planning of health activities.

The aforementioned evaluation included a national census of hospitals and other health resources, the results of which were published in a monograph.

A technical advisory council was established at the National Department of Health to guide programs, coordinate the various activities, and improve the administration of the budget.

Several outbreaks of communicable quarantinable diseases or cases of highly infectious illnesses gave rise to specific control programs. A vaccination campaign against yellow fever was carried out along the borders with Argentina and Brazil. The smallpox vaccination campaign in the Department of Concepción was stepped up, and a survey was made of the possibility of conducting a national plan to eradicate the disease in Paraguay. Intensive typhoid fever vaccinating was done in the cities of Concepción and Puerto Casado, where outbreaks of the disease had occurred. Standards on tuberculosis diagnosis, classification, treatment, and vaccination were drawn up, printed, and distributed to the various Health Regions. A radiological survey was conducted among the presumably healthy population, and the 40,000 X rays that were taken provided better information on the prevalence of tuberculosis and the degree of infection. The standards for the diagnosis, treatment, and recording of leprosy cases were updated, and disability data on patients were entered on epidemiological cards for purposes of beginning a rehabilitation program.

Progress was made in the establishment of 7 peripheral laboratories as part of the program for the control of communicable diseases.

In the field of statistics new forms for the reporting of communicable diseases (tested in 1965) were adopted throughout the country. A manual of forms and rules to standardize the reporting procedures of health centers and health posts was completed, and a program was begun to improve the recording of hospital activities. A retrospective survey of vital statistics was completed in the district of San Ignacio (population 17,370) and the findings indicated that not all deaths had been reported; an investigation was underway to determine the reason for the substandard reporting.

Emphasis continued to be given to the improvement of basic health services. Lists of supplies and equipment were prepared for submittal to UNICEF for consideration in the maternal and child health programs. UNICEF provided 22 dental clinics which made it possible to expand dental care. Nursing activities focused on the planning and supervision of activities and on advisory services at the central, regional, and local levels.

The Ministry of Public Health and Social Welfare, with the cooperation of the PASB, made progress in its project to improve the purchase, storage, and distribution of drugs and medications for its divisions, while the Department of Medical Care completed studies on the unit costs of products furnished by the central production laboratory. A National

Rehabilitation Council was established in which the Health Ministry and private health care and public charity institutions are represented. The primary purpose of this Council is to coordinate resources and efforts to tackle the rehabilitation problem on a national scale.

The most important health activity targets and accomplishments during the first 6 months of the year were:

<i>Activities and norms</i>	<i>Targets (1966) (year)</i>	<i>Percent accomplished (first 6 months)</i>
Communicable disease control:		
Tuberculosis, case control	3,582	46.2
Case consultation	21,492	27.0
Contact consultation	19,390	12.9
BCG vaccinations	128,398	24.1
Tetanus, vaccinations	469,400	23.3
Diphtheria and whooping cough, vaccinations	233,400	14.8
Poliomyelitis, vaccinations	62,200	10.9
Smallpox, vaccinations	335,328	35.3
Leprosy, case control	3,050	24.4
Case consultations	12,200	21.6
Contact consultations	17,080	3.4
Syphilis, cases	2,135	70.0
Case consultations	4,270	68.0
Contact consultations	17,080	2.9
Control by nursing services:		
Diarrhea and enteritis:		
1 home visit (50% of children under 6 years, ambulatory treatment)	6,670	3.5
2 interviews (100% of children under 6 years coming to outpatient departments)	26,680	15.2
Tuberculosis:		
2 home visits (100% of outpatients under control)	7,174	22.5
2 interviews (100% of ambulatory patients under control)	7,174	38.3
Acute respiratory diseases:		
1 home visit (100% of patients)	893	13.8
2 interviews (100% of pneumonia and bronchopneumonia patients)	1,786	55.9
Preventable diseases (tetanus, whooping cough, measles, poliomyelitis, diphtheria, and smallpox):		
Home visits	2,710	25.2
Interviews	5,224	13.0
Leprosy:		
2 home visits (100% of patients)	6,100	4.7
Interviews (100% of patients)	6,100	6.8
Syphilis:		
1 home visit (100% of patients)	2,135	52.1
Interviews (100% of patients)	4,270	33.0
Maternal health:		
Prenatal care (60% of pregnant women)	41,600	39.4
Prenatal consultations: 3 consultations per pregnant woman	93,600	34.9
Nurse interviews: 1 interview per health center consultation	16,412	90.7
Health education: 4 courses for clubs of expectant mothers by each health center	244	11.8

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<i>Activities and norms</i>	<i>Targets (1966) (year)</i>	<i>Percent accomplished (first 6 months)</i>
Postnatal control and newborn control, outside the institution	25,200	2.7
Births at health centers: (50% delivery care)	15,600	20.6
Nurse interviews with new mothers	12,480	13.1
Training of lay midwives: 47 training courses, average of 6 midwives each	282	7.0
Environmental sanitation:		
Well-drilling	30	50.0
Building of cesspools	200	13.5
Rehabilitation of wells	200	23.5
Installation of running water	10	240.0
Taking of water samples	820	10.2
Latrine construction	2,650	31.3
Latrine repair	2,650	19.4
Inspections:		
Home garbage disposal	5,300	26.4
Municipal garbage disposal	740	20.2

Personnel training activities under this project included the following courses: 2 in up-to-date standards and procedures in nursing and human relations (1 month), for 50 midwives and nursing auxiliaries; 1 to train nursing auxiliaries (10 months), for 45 students; 1 special professional certification course (12 months), for 18 graduate nurses; 1 course in public health administration (2 months), for 26 department heads; 1 in intermediate statistics (6 months), for 16 students; 1 in child legislation (18 hours), for 54 medical professors, social workers, and lawyers; 1 in health planning (9 months), for 14 department heads; and 1 sanitation inspector course (9 months), for 16 students. The School of Nursing continued to provide its basic course, for a total of 118 students.

PAHO/RB, WHO/UN-TA

UNICEF

PARAGUAY-3101 (-12), Fellowships for Health Services

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
1	Ground water development	Chile	½
1	Microbiology	Peru	1
1	Public health administration	Mexico	10½
1	Ditto	Chile	4
2	Public health planning	Ditto	3½
1	Rural water supply	Argentina	¼
1	Sanitary engineering (rural water supplies)	Ditto	½

WHO/RB

PARAGUAY-3102 (-13), Fellowships for Health Services

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
1	Public administration	Chile	4
1	Ditto	Ditto	2½

PAHO/RB, PAHO/OF

PARAGUAY-4200 (-18), Nutrition

Objective: To develop in a selected area of the country an expanded nutrition program including education and training activities, promotion of the production of highly nutritious foods, and improvement of the nutritional status of pregnant women, nursing mothers, and preschool and school children.

Probable duration: 1960-

Assistance provided: Advisory services by personnel of the Zone VI Office and of other projects in the country; and a 2½-month fellowship to study nutrition, in Guatemala.

Work done: Although PASB did not participate locally in this project, two events of great importance deserve to be mentioned here in view of their implications for future PAHO technical assistance. The events were: (1) that the pertinent authorities made a thorough review and evaluation of the applied nutrition program, and (2) that the Office of International Research of the U.S. National Institutes of Health conducted a nationwide nutrition survey (the results of which had not yet been published).

PAHO/RB

FAO, UNICEF

PARAGUAY-6200 (-21), Medical Education

Objective: To strengthen medical education by promoting teaching programs in preventive and social medicine at the undergraduate and postgraduate (rural internship) levels; and to improve the pedagogical approach to the teaching of medicine.

Probable duration: 1964-

Assistance provided: Advisory services by Zone V Office personnel.

Work done: Discussions were held with the pertinent authorities to plan an assessment of the teaching of preventive medicine at the School of Medicine of the National University of Asunción.

PAHO/RB

RF

PARAGUAY-6300 (-20), Education in Nursing and Midwifery

Objective: To train nurses and midwives at the Dr. Andrés Barbero Institute.

Probable duration: 1964-1969.

Assistance provided: Advisory services by Headquarters professional personnel.

Work done: The plan for a 1-year postbasic course that will enable former graduates of the School of Nursing of the Dr. Andrés Barbero Institute, now affiliated with the National University of Asunción, to obtain their bachelor of science degree was completed. The course was scheduled to commence in the 1967 scholastic year.

The School of Nursing has continuous consultation services available from Buffalo University (New York, U.S.A.) under an Agency for International Development (U.S. Government) contract.

PARAGUAY-6600, Dental Education

Objective: To improve the teaching of the clinical, preventive, and social aspects of dentistry; and to develop field practices in public health dentistry.

Probable duration: 1966-1967.

Assistance provided: 2 short-term consultants and advisory services by the PAHO/WHO Country Representative; and a small amount of equipment and supplies.

Work done: A program of instruction including the preventive and public health aspects of dentistry was prepared, and some lectures on epidemiology were given.

Two professors from the School of Dentistry attended the III Latin American Seminar on the Teaching of Dentistry (AMRO-6607) and the III Course on Dental Education (AMRO-6609) held in Petrópolis, Brazil, in November and December.

WHO/RB**PERU-0200 (-5), Malaria Eradication**

Objective: To eradicate malaria.

Probable duration: 1957-1971, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 1 sanitary engineer, 4 sanitation inspectors, and advisory services by Headquarters and AMRO-0200 personnel; antimalaria drugs and other supplies and a limited amount of equipment; and one 5½-month fellowship to study malaria, in El Salvador, Mexico, and Venezuela.

Work done: From January through October, 163,418 house-spraying were carried out. Among the 353,890 blood smears examined, 1,710 cases of malaria were found; 98 of these were from consolidation, and 5 from maintenance-phase areas.

Of the 10 foci existing during 1965 in consolidation-phase areas, 4 were eliminated, 4 continued with cases but were much reduced, and 2 very small foci in 1965 enlarged during 1966. Spraying, intensive search for cases, and prompt radical-cure treatment of cases and contacts were used.

In attack-phase areas on the western slope, 6 areas of persistent transmission were pinpointed during 1965; in 1966, transmission was eliminated in 2 by using 3 spraying cycles per year and 2 cycles of collective radical-cure treatment with chloroquine-primaquine using the 8-week system. One area developed into an epidemic outbreak and attack measures similar to those used in consolidation-phase area foci were employed.

Semiannual spraying cycles and collective radical-cure treatment, using the 3-day administration of chloroquine-primaquine-pyrimethamine, was employed in 11 areas in attack phase, on the eastern slope.

Nineteen provinces on the coast, with a population of 997,781, passed from consolidation phase into maintenance phase and the responsibility for their surveillance was turned over to the general health services. Men and equipment were transferred from the malaria service to the general health services to carry out this work. This increased the area in maintenance phase to 31 provinces with 1,043,781 inhabitants.

The Government held a seminar during December to familiarize personnel of the general health services stationed in consolidation-phase areas with the role they can play in cooperating with the malaria eradication service. Personnel of AMRO-0200 collaborated in the preparation and development of the seminar and also provided advice for the improvement of laboratory activities.

PAHO/SMF**UNICEF****PERU-0401, Tuberculosis Control (Tacna)**

Objective: To establish in the Tacna health area a demonstration area for the application and evaluation of practical methods of tuberculosis control and for training medical and auxiliary personnel, in order to extend the program gradually to other areas of the country.

Probable duration: 1961-1966.

Assistance provided: Advisory services by personnel assigned to projects AMRO-0400 and -0404.

Work done: A National Tuberculosis Control Program, which will be implemented as part of the National Health Plan, was prepared. Essentially, the program consists of uniform control activities to be carried out throughout the country by 5 teams, 1 each to be permanently stationed in each of the 5 health regions of the country.

The mass BCC vaccination program was begun in June among the 0-19-year-old age group of the population, and calls for applying the tuberculin test to 21,000 persons in Tacna, Ilo and Moquegua and for vaccinating, without previous tuberculin test, 50,000 rural inhabitants. The achievements were: 3,076 consultations, 154 new cases and 192 suspected cases detected, 10,246 photofluorographic examinations, 2,701 sputum tests, 242 cultures, and 65 sensitivity tests. Of the 428 known contacts 324 (75.7%) were examined; 297 visits were made.

The Ministry of Public Health and Social Welfare, with assistance from the Pan American Sanitary Bureau, organized and carried out in July, in Huarás, a Seminar on Tuberculosis Control Problems. The 54 participants—epidemiologists, specialists in tuberculosis, and heads of health areas—formulated recommendations which provided the basis for the National Tuberculosis Control program which will be carried out as part of Peru's National Health Plan.

A short course on the theory and practice of tuberculosis control was conducted in Tacna for professional, technical, and auxiliary personnel of the Tacna and Moquegua health area.

UNICEF**PERU-0700, Veterinary Public Health**

Objective: To intensify and expand the national rabies control program, particularly in Lima, by applying modern techniques for large-scale vaccination of the canine population and for the control and reduction of animal vectors.

Probable duration: 1966-1967.

Assistance provided: 1 short-term consultant and ad-

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visory services by Headquarters and Pan American Zoonoses Center personnel.

Work done: The National Commission for the Control of Zoonoses and the Veterinary Public Health Section of the Lima Health Area prepared an operational plan for the control of rabies in the capital as well as at the national level.

The first phase of canine population control was initiated in November and will be followed by large-scale vaccination of dogs. With the cooperation of the rabies adviser of the Pan American Zoonoses Center the National Institute of Health reorganized its rabies vaccine production section, mainly with regard to the production of vaccine prepared in unweaned mice, for human and animal use.

PAHO/RB

PERU-0900, Plague Control

Objective: To establish a plague control program in the endemic areas of the country.

Probable duration: 1966-1970.

Assistance provided: 2 short-term consultants and advisory services by Headquarters and Zone IV Office personnel; equipment and supplies; and two 2½-month fellowships to study plague control, in Brazil.

Work done: Owing to the reappearance of plague—669 cases were reported during the year—it was decided to transfer the control activities of the health centers to a specialized plague control service under the Special Public Health Service. To that end, a program director was appointed and the necessary measures were taken for organizing 3 regional laboratories for bacteriological diagnosis and epidemiological research in the problem.

A study was made of the plan of operations which, as an initial step, calls for the preparation of an adequate budget and of an outline of activities, personnel training, etc.

The inspectors were appointed in September and a housing survey was initiated in the northern areas affected by the disease. A training course for the personnel who will carry out the extermination of rats and disinfestation of the area was initiated.

PAHO/RB

PERU-2101, Sanitary Engineering Research

Objective: To determine the lead content, if any, in plastic pipes produced locally and in water that has been in contact with plastic pipes; and to investigate the effect of this water when consumed by human beings.

Probable duration: 1966-1967.

Assistance provided: A grant to the School of Sanitary Engineering of the National University of Engineering for local costs.

Work done: Plastic pipes were purchased from all factories in Lima manufacturing this item. Following the procedures recommended by the National Sanitation Foundation in the United States of America and by various technicians in Europe, tests were made to deter-

mine if the pipes contained lead as a stabilizer. The amount of lead contained in water that was in contact with the plastic pipes produced by each manufacturer was also determined.

Peru's National Institute of Standards and Certification will make the final decision on the basis of the findings.

WHO/RB

PERU-2200 (-30), Water Supplies

Objective: To plan, organize, and develop a national program for the construction or extension of water supply and sewerage systems, including the administration and operation of the services.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer, 1 short-term consultant, and advisory services by Headquarters and Zone IV Office professional personnel.

Work done: Under the first stage of the National Plan for Water Supply and Sewerage Works, services are to be provided or extended in 100 cities with populations ranging from 2,000 to 30,000. At the end of 1966, contracts had been awarded for work in 40% of the systems and construction had started in 30%. Approximately 60% will be financed with a loan from the Inter-American Development Bank and 40% with local funds.

The second stage of the National Plan calls for construction of systems in 11 of the larger cities at a cost of US\$26 million, of which US\$15 will be sought from IDB. Planning for this stage was advanced to the point that it was foreseeable that the proposal may be submitted to the Bank in early 1967 and that construction on several systems could begin as soon as funds are available.

Design Standards for Potable Water Supply Systems were approved and published by the Subdepartment of Sanitary Works, and the preparation of Design Standards for Sewerage Systems was begun.

Work continued at a fast pace in the expansion of the water supply treatment and distribution system of Lima.

PAHO/CWFS, WHO/UN-TA

IDB

PERU-2201, Rural Water Supplies

Objective: To develop a national rural water supply program.

Probable duration: 1965-

Assistance provided: Advisory services by the engineer assigned to project Peru-3100 and by Headquarters and Zone IV Office professional personnel.

Work done: The first stage of the national rural water supply program, which included the construction of water supply systems for 150 communities, was almost completed. Plans for the second stage, considering the construction of water supply systems for 300 localities, were presented to the Inter-American Development Bank and approved. Total cost for the second stage is about US\$7 million, of which \$3.8 million will be financed with a loan from IDB.

PERU-3100 (-22), National Health Services

Objective: To improve health services at the national, regional, and local levels; and to organize health areas, beginning with the Junín Health Area.

Probable duration: 1956-1968.

Assistance provided: 1 medical adviser, 1 sanitary engineer, 2 public health nurses, and 2 short-term consultants; and contractual services.

Work done: The first stage of the national rural water supply plan was completed; it covered the building of water supply facilities for 150 localities with the aid of loans from the Inter-American Development Bank. A new project of US\$3.8 million was submitted to the Bank for execution of the second stage, which will provide potable water to an additional 300 localities.

In the nursing field, apart from organizing the services in the establishment of the Junín Health Area, emphasis was placed on improving the clinical fields of nursing education under a nation-wide program that included 15 of the most important hospitals in the country. The main activities were: a study of evaluation criteria; a study of the nursing services and general conditions at the Victor Larco Herrera Psychiatric Hospital, which led to changes and to the initiation of activities to improve it; and a beginning on the organization of the Nursing Department of the Workers Social Security. Moreover, seminars were held on several nursing subjects, draft nursing standards were prepared, and minimum standards for nonuniversity nursing schools were established.

In the Junín Health Area, 2 seminars were conducted for management personnel at the central and regional level, to analyze activities under the National Plan for the Development and Integration of the Indian Population of Mantaro Valley and the Bombóm Meseta, both of them in the Area; a Regional Committee for Joint Area Activities in the Mantaro Valley was also established, and it selected the communities that would be brought into this program. Activities were begun under this plan, which consists of 11 individual projects to be carried out in 7 Andean areas of the country.

An evaluation of activities during the year showed that some of the established targets had not been merely achieved, but actually exceeded.

<i>Activities and norms</i>	<i>Targets (1966) (year)</i>	<i>Percent accomplished (first 5 months)</i>
Hospitalizations (patients per bed/year, 16.4; occupancy rate, 80%; average stay, 17 days)	6,010	116.0
Medical calls: 17.2% of accessible population	109,582	153.1
Dental calls: 5.07% of accessible population	67,996	108.0
Home visits by nurses: 1.63% per person	24,146	122.0
BCG applications: 17% of accessible population	3,354	279.0
Typhoid and paratyphoid vaccinations: 15% of susceptible population	27,637	25.4
Whooping cough and diphtheria vaccinations: 15% of susceptible population	26,522	0.8
Smallpox vaccinations: 20% of susceptible population	10,139	1.9
	71,679	1.8

<i>Activities and norms</i>	<i>Targets (1966) (year)</i>	<i>Percent accomplished (first 5 months)</i>
Rabies treatment	57	421.0
Yellow fever vaccinations	12,159	22.9
Environmental sanitation inspections: 1.52 hour per inspector	20,163	147.0
Aqueducts to be built	7	100.0
Latrines to be built	250	75.2

Personnel training under this project included the following courses: 1 in psychiatric nursing (1 week), for 36 nurses; 1 of orientation in health organization and structure (15 days), for 51 nurses; 1 in nursing (6 months), for 45 students; 1 in the principles of nursing administration (1 week), for 15 nurses; 1 in hospital administration and nursing supervision (3 months), for 48 nurses and 12 midwives; 1 in auxiliary nursing (6 months), for 40 students; and 16 employees received inservice training in auxiliary nursing. A course in sanitation (6 months) was given for 20 persons, and 2 training courses (1 month each) in public health programs were attended by 50 rural teachers.

The following seminars were held during the year: 1 in nursing standards (4 days), attended by 100 nurses, and another (1 week), by 126; on infant hygiene (3 days), for 30 students of the School of Public Health; in integrated patient and family care (5 days), for 130 nurses; on the plan for the development and integration of the Indian population (1 week), for 69 officials of 5 health regions, and another on the same subject for 37 administrative officials of the Ministry of Public Health and Social Welfare. Two workshops were also held: one on environmental sanitation, for 53 officials of the Ministry and another on health center techniques, for 120 physicians, nurses, social workers, health educators, and sanitation inspectors.

PAHO/RB, WHO/UN-FA**UNICEF****PERU-3101 (-21), Fellowships for Health Services**

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
2	Clinical and social pediatrics	Chile	3
1	Dental public health	Brazil	11
1	Laboratory services (goiter)	Chile, Guatemala	2½
1	Ditto (microbiology)	Brazil	4
1	Ditto (smallpox)	Ditto	¼
1	Ditto (venereal diseases)	Argentina	½
1	Leprosy	Ecuador, Venezuela	3½
1	Medical pedagogy (preventive medicine)	Brazil, Chile	9
1	Pharmacy teaching (microbiology)	Brazil	12
1	Pharmacy teaching (public health administration)	Chile	6½
1	Public health law	Brazil, Chile, Colombia, Costa Rica, Mexico	1½
1	Public health nutrition	Colombia, Guatemala, Honduras	5
1	Public health planning	Chile	3½

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Awards	Field of study	Place of study	Months
1	Sanitary engineering teaching (environmental sanitation)	Ditto	½
1	Tuberculosis (bacteriology)	United States of America	1

WHO/RB

PERU-3103 (-25) Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Enteric diseases (bacteriology)	United States of America	¾
2	Environmental sanitation (industrial hygiene)	Chile	½
1	Laboratory services (mycology)	Brazil	3
2	Public administration	Chile	4

PAHO/RB

PERU-3104, National Institutes of Health

Objective: To expand the activities of the National Institutes of Health.

Probable duration: 1965-

Assistance provided: 1 short-term consultant.

Work done: A study was begun on the feasibility of constructing a new building for the National Institutes of Health. The report of the study will be submitted to an international agency for consideration, with a request for financing the construction.

PAHO/RB

IDB

PERU-3105, Health Services in Loreto

Objective: To improve the services of the Health Area of the Department of Loreto.

Probable duration: 1966-1970.

Assistance provided: This project was serviced by personnel assigned to projects Peru-3100 and AMRO-0504.

Work done: A program of activities was prepared for the Loreto Health Area in accordance with the targets established in the National Health Plan for 1966-1970. Close working relationships were established with the Ministry of Public Education, the Ministry of the Navy and Air Force, the Government Sanitation and Police Departments, the 5th Military Region; the National Workers Insurance Fund, the National Malaria Eradication Service, and the National Child Nutrition Program. Armed Forces health personnel rendered services to the civilian population, the Navy provided transportation for health workers on the vessels of its regular river service, and the Air Force contributed a dispensary-airplane.

The training of rural school teachers in health activities and the preparation of a manual on first aid in accidents or illness made it possible to put new health posts into operation in rural schools.

To provide health care service to the rural population of the Department of Loreto the Hipólito Unanue motor launch

was remodeled and put in working order, 31 health posts were established and furnished with basic equipment, 26 health posts were put into operation in cooperation with the Civil Guard and another 81 posts were put into operation in schools. Construction of the 133-bed Pucallpa Hospital-Health Center was completed by the end of the year, as were 2 communicable disease wards at the Iquitos Hospital-Health Center. The Caballo Cocha medical post was completely remodeled.

The number of nursing auxiliaries was increased by 30 over the previous year, to a total of 108. Two evaluations were made of work with accessible populations, the results indicating that a large part of the targets had been accomplished, as shown by the following sample data:

Activities and norms	Targets (1966) (year)	Percent accomplished (first 10 months)
Hospitalization (80% occupancy; average stay (days) 12.27; discharges per bed per year 29.75)	7,673	114.6
Consultations:		
Medical: 1.75 per accessible person	129,978	98.1
Dental: 1.5 per accessible person	43,939	74.1
Home visits by nurses: 2.92 per person	5,566	133.5
Vaccinations, BCG: 7% of susceptible population	11,831	54.5
Typhoid	11,355	16.0
Whooping cough and diphtheria: 15% of susceptible population	5,148	46.9
Poliomyelitis: 35% of susceptible population	12,013	573.8
Smallpox: 20% of susceptible population	33,803	113.4
Measles: 20% of susceptible population	6,864	206.2
Canine rabies	121,284	187.9
Health inspections: 1.54 per inspector-hour	6,844	151.8

Attempts to reach rural populations inaccessible by the usual means had the following results: 13,501 medical and 13,628 dental consultations, 967 home visits by nurses and 325 by health inspectors, 2,129 whooping cough and diphtheria vaccinations, and 13,017 smallpox, 6,183 poliomyelitis, 4,452 BCG, 556 measles and 3,228 yellow fever vaccinations.

Personnel training activities under this project included several orientation courses in public health (1 month each), for 48 teachers; 1 nursing auxiliary course (6 months), for 44 students; and inservice training for 10 nursing auxiliaries and 6 health auxiliaries.

See also project AMRO-0504.

PERU-3500, Health Statistics

Objective: To improve vital statistics by training district civil registrars.

Probable duration: 1966-

Assistance provided: A grant to the National Office of Statistics and Census and advisory services by the statistician assigned to project AMRO-3504.

Work done: Peru's National Committee on Vital and Health Statistics directed its efforts to improving registration and reporting of vital statistics, including revision of death and birth certificates and organization of short courses for district registrars, primarily in areas without access to medical services. With regard to the latter, the Ministry of Public Health and Social Welfare, the Office of Civil Registration, the United Nations, and the Pan American Sanitary Bureau collaborated in the organization of a series of training courses.

The first course was held from 5 to 10 December for 30 district registrars from the Department of Puno. The course analyzed the Peruvian legislation with respect to civil registration from the viewpoint of international recommendations. The sections in statistical reports on births, marriages, deaths, and fetal deaths were also analyzed and the frequent errors and omissions were pointed out; and the uses of registration in health, demography, and analytical studies were also pointed out. The new principles on organization, procedures, and techniques of civil registration were presented to the students.

A second course was held from 12 to 17 December for 30 district registrars from the Department of Cuzco.

PAHO/RB

PERU-3600, Administrative Methods and Practices in Public Health

Objective: To improve the administrative methods and practices of the health services.

Probable duration: 1966-

Assistance provided: A grant for the development of courses; and advisory services by the administrative methods adviser assigned to project AMRO-3604.

Work done: The Ministry of Public Health and Social Welfare continued implementing its new administrative structure. Progress was also made in the development of a personnel- and salary-scale classification system and in the improvement of records management practices.

Two 1-month courses were held, with the assistance of the Organization, for administrative personnel of the Ministry. The courses were general in scope and covered all areas of administration.

PAHO/RB

PERU-4200, Nutrition

Objective: To achieve the gradual improvement of the nutrition status of the population in the Departments of Junín, Pasco, and Puno as one of several coordinated efforts to raise the health level in the country.

Probable duration: 1965-1967.

Assistance provided: Advisory services by the medical nutritionist assigned to project AMRO-4204; a small

amount of equipment and supplies; and one 2-month fellowship to study nutrition, in Guatemala, Honduras, and Mexico.

Work done: The Departments of Junín and Pasco implemented additional activities in their applied nutrition programs, such as a program of supplementary feeding for preschool children and pregnant and nursing women; an anthropometrical survey; and the provision of medical care, immunizations, and water supply in schools. Educational activities and the training of personnel were also further developed. With the official conversion of this pilot program into a national program (2 July 1966), emphasis was placed on the integration of nutrition activities into other public health activities.

A 1-week course on applied nutrition and a seminar on coordination of applied nutrition work were held in Lima for the professional personnel of the Integrated Applied Nutrition Program (PINA), and, at the School of Public Health, a 4-lecture course on hospital food services was given for hospital administrators. Two lectures on public health applied nutrition programs were given at the General Hospital in Arequipa.

PAHO/SFHP

FAO, ILO, UNICEF

PERU-4201, Goiter Prevention

Objective: To study the use of iodized oil as a means of preventing goiter, with special reference to community motivation and participation.

Probable duration: 1966-1968.

Assistance provided: 5 short-term consultants and advisory services by the medical nutritionist assigned to project AMRO-4204; a grant for local costs; and equipment and supplies.

Work done: A map, a population census, and a dietary survey were made in 2 communities of the Department of Junín and injections with iodized oil were administered to children. The taking of X rays of bone was begun in order to study the effects of the injections on bone maturation. The study was progressing according to schedule.

PAHO/RB

PERU-6100 (-33), School of Public Health

Objective: To establish a School of Public Health in order to ensure adequate preparation of professional, technical, and auxiliary personnel for institutions that provide health services to the population.

Probable duration: 1963-

Assistance provided: 3 short-term consultants and advisory services by Zone IV Office personnel; and one 1-month fellowship to study public health teaching, in Venezuela.

Work done: The following courses were held: in health planning, from 26 March to 11 June, for 26 students; in public health nursing, from 18 April to 31 August, for 13

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students; in public health, for executives, from 1 August to 23 December, for 8 students; for statistics auxiliaries: at Ica, from 7 February to 7 May, for 22 students; at Lima, from 11 April to 19 December, for 19 students; and at Cuzco, from 11 July to 9 December, for 19 students; for sanitation inspectors: at Huancayo for 15 candidates and at Tacna for 14 candidates, both from 23 June to 23 December; to prepare nurse auxiliaries: at Lima, from 10 January to 20 July, for 34 students; at Ica, from 31 January to 13 August, for 57 students; and at Cuzco, from 1 March to 3 September, for 30 students.

The following courses were also begun: in public health (1 year) on 11 April and in hospital administration (8 months) on 28 May, both for physicians; in administration and supervision of nursing services (9 months) on 18 April, all at Lima. A 5-month course to train nurse auxiliaries was begun at Tacna on 1 October.

WHO/RB

UNICEF

PERU-6200 (-31), Medical Education

Objective: To strengthen medical education through adequate planning of teaching and research activities, improved training of medical-school teachers and researchers, and a better pedagogical approach to the teaching of medicine.

Probable duration: 1964

Assistance provided: Advisory services by the personnel assigned to projects AMRO-6204 and -6210; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical education (microbiology)	Brazil	6
1	Ditto (preventive medicine)	Puerto Rico	11½
1	Ditto (pharmacology)	Chile	3
1	Ditto	Ditto	12
1	Medical education pedagogy (nutrition)	Guatemala	6
1	Medical records librarianship	Colombia	5¼
1	Mycology	Brazil	9
1	Pharmacy and teaching (pharmacology)	Chile	4

Work done: The III Seminar on Medical Education in Peru was held from 29 October to 3 November, in Trujillo.

A 2-week course entitled Laboratory of Human Relations and Medical Teaching was held at the San Fernando School of Medicine of the National University of San Marcos, in Lima, from 17 to 29 January, for 33 professors: 2 from Argentina and 31 from the various medical schools in Peru.

Discussions were held with faculty members of the School of Medicine of the National University of San Marcos regarding the planning and organization of departments of basic sciences.

PAHO/RB, PAHO/OF

RF

PERU-6300 (-15), Nursing Education

Objective: To improve nursing education in 5 university schools of nursing.

Probable duration: 1959-1968.

Assistance provided: 2 nurse educators and 2 short-term consultants; and equipment and supplies.

Work done: The original enrollment of 13 candidates for the 2-year-and-2-summer postbasic educational program for nurses who wish to obtain a bachelor of science degree increased to 22 by the time the academic year started. The program was in its second year and involved 4 universities. Lesson plans for the second-summer session were prepared. The scholastic-year part of the program offers the students courses in the humanities, sciences, etc., and the summer sessions provide intensive nursing courses and clinical practice.

Other nursing highlights in Peru were that the First University-Level Nursing Seminar was held; the Peruvian Interuniversity Association of Faculty Members and Nursing Schools was established; and a committee to draw up budgets for schools of nursing was appointed.

PAHO/RB, WHO/RB

PERU-6400 (-18), Sanitary Engineering Education

Objective: To improve the teaching at the School of Sanitary Engineering of the National University of Engineering by a review of the curriculum and the provision of better laboratory facilities; to organize training activities through short intensive courses on various aspects of sanitary engineering; and to encourage the establishment of a research and information center.

Probable duration: 1964-1967.

Assistance provided: 2 short-term consultants and advisory services by professional personnel of Headquarters, of the Zone IV Office, of project AMRO-2104, and of other projects in the country; and the cost of 2 courses.

Work done: The Research Information Center at the School of Sanitary Engineering of the National University of Engineering was established and brought into service. The Center undertook 2 research projects, by contract, for the Department of Sanitation Works of the Ministry of Development and Public Works. The Center also started, in October, a 6-month study on the lead content of water that had been in contact with plastic pipes.

Two intensive courses were held: 1 on the financing of sanitation works, from 11 to 16 July, for 18 students; and the other on electronic computers in sanitary engineering, from 24 October to 4 November, for 32 students.

Two professors of the School of Sanitary Engineering of Lima, one a specialist in sanitary biology and bacteriology and the other in unit processes, visited Brazil in August to exchange information and programs with professors in similar fields at the School of Hygiene and Public Health of São Paulo.

**PAHO/RB, PAHO/SFHP, PAHO/CWSF,
WHO/RB**

PERU-6500 (-28), Veterinary Medicine Education

Objective: To strengthen the School of Veterinary Medicine at the University of San Marcos, especially as to the teaching of public health and preventive medicine.

Probable duration: 1964-1969.

Assistance provided: 3 short-term consultants and advisory services by personnel of Headquarters and of the Pan American Zoonoses Center; technical publications; and audiovisual aids for teaching programs.

Work done: The School of Veterinary Medicine established its own Zoonoses Institute with teaching and research responsibilities in this field. One of the first activities of the Institute was to organize and hold an international postgraduate course, of 2 months (308 teaching hours), on the epidemiological, statistical, administrative, and sanitation aspects of the zoonoses. The course was attended by 32 professionals (26 Peruvians and 6 from other countries) from various schools of veterinary medicine and public and animal health services. The Institute also completed, from 5 to 15 September, 1 postgraduate course in meat inspection and technology for veterinarians in the public services and in the private sector.

The Department of Virology and Microbiology of the School initiated, in the second semester, in association with the Pan American Zoonoses Center, a program for the study and control of brucellosis in goats in the north of Peru.

WHO/RB**SURINAM-0200 (-1), Malaria Eradication**

Objective: To eradicate malaria.

Probable duration: 1957-1972, year in which the consolidation phase is expected to be completed.

Assistance provided: 1 medical officer (who also served as acting director of the program), 1 health educator, 1 entomologist 1 malaria specialist, 1 laboratory adviser, and 2 sanitation inspectors; antimalaria drugs and other supplies and a limited amount of equipment; and one 1½-month fellowship to study malaria (entomology) in Trinidad.

Work done: 24,519 house-sprays were performed. Among 35,416 blood smears examined, 2,880 cases of malaria were detected. Of these, 6 were cases found in consolidation-phase areas and 4, after the epidemiological investigation, were classified as imported from the attack-phase areas of the country. The program of medicated-salt distribution, initiated in 1965 in the upper Surinam River area, was expanded in June 1966, after completion of construction of the mixing plant, to cover the population of that area.

PAHO/SMF**UNICEF****SURINAM-2200 (-10), Water Supplies**

Objective: To plan a rural water supply program for the country.

Probable duration: 1964-

Assistance provided: Advisory services by professional personnel assigned to the Zone I Office.

Work done: The urban water supply program serves about 70% of an estimated population of 123,000; and less than 5% of a rural population of 218,000 have public-piped water in their homes. In some rural areas water is supplied by Government-owned tank trucks.

The Government approved plans for a ground water resources survey project and the proposal for a loan request was submitted to the United Nations Development Program in April.

SURINAM-2300 (-51), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1952-

Assistance provided: 1 sanitation inspector, advisory services by the medical officer assigned to project AMRO-2300, and technical guidance and supervision by the short-term consultant assigned to project AMRO-2301; and equipment and supplies.

Work done: The work of the campaign continued concentrated in Paramaribo, which was inspected 5 times in the first 4 months of the year; the infestation index ranged between 15% and 30% because, the mosquito being resistant to chlorinated compounds, the campaign made no use of insecticides during that period, the personnel confining themselves in their periodic house visits to general measures aimed at controlling the mosquito. Fenthion began to be used in the campaign in May and results improved considerably, but the new insecticide could not be used to full effect because of failure to eliminate the administrative difficulties that have beset the campaign since it was started (in 1963).

The campaign also worked at the international airport of Surinam, in the border towns of Albina and Nickerie, and in 10 localities in the environs of Paramaribo. Except at the airport and in the locality of Blauwgrond, which were treated with fenthion and whose indices were lowered to 2.3% and 6.6% respectively, the campaign's activities yielded very limited results.

PAHO/RB, WHO/UN-TA**SURINAM-3100 (-9), Health Services**

Objective: To strengthen and integrate the health services and to extend them to the rural areas.

Probable duration: 1965-1968.

Assistance provided: Advisory services by professional personnel assigned to the Zone I Office, and one 6-month fellowship to study laboratory services (virology), in Trinidad.

Work done: A Committee on Health Survey and Planning was appointed in January, but because of shortage of staff was ineffective. At year's end the Ministry of Health had under consideration an expanded nutrition program and the Government agreed to be host to the III Seminar on the Organization and Administration of

VIII. PROJECT ACTIVITIES

Health Services (Caribbean area), which will be held in Paramaribo in 1967.

PAHO/RB

TRINIDAD AND TOBAGO-2200 (-10), Water Supplies

Objective: To create a central water and sewerage authority; and to prepare plans to improve the water and sewerage systems of Trinidad and Tobago, endeavoring for efficient operation and maintenance and, eventually, economic self-support.

Probable duration: 1963-1967.

Assistance provided: 1 short-term consultant (2 visits) and advisory services by professional personnel assigned to Headquarters and Zone I Office.

Work done: Plans were prepared for an administrative reorganization of the National Water and Sewerage Authority, including required staff, changes in accounting practices to provide current and accurate control information, and a thorough revision of water rates structure, billing, and collection procedures, in order to put the utility on a viable fiscal basis.

Plans were also made to bring about operating economies such as adequate control of stores and better utilization of personnel. Systematic programs for maintenance and repair of equipment and for its retirement and replacement, which have potential for substantial cost savings and improvements in service, were drafted. Training in improved techniques was provided for operating personnel.

Highlights of new construction in Port-of-Spain included enlargement of the water treatment plant and extension of the water distribution system and new sewers and house connections to them. Plans for new water sources to meet increased demand were in preparation, and a leak detection program was begun.

PAHO/CWSF

TRINIDAD AND TOBAGO-3103 (-14), Fellowships for Health Services

Awards	Field of study	Place of study	Months
12	Nursing administration and supervision	Barbados	4
1	Nutritional and metabolic diseases	United Kingdom	12
2	Public health administration	United States of America	12
1	Water supply systems	United States of America	12

PAHO/RB, WHO/RB

TRINIDAD AND TOBAGO-3200 (12), Nursing Services

Objective: To strengthen and improve the nursing services in Trinidad and in Tobago.

Probable duration: 1959-

Assistance provided: 1 nurse adviser and consultant services by the nurse assigned to AMRO-3201; and three 12-month fellowships for studies in nursing education (teaching) in Jamaica.

Work done: The survey begun in 1965 was completed and showed that at the time the nursing resources consisted of 1,216 nurses, 632 nursing students, and 487 ward assistants. This information and the recommendations contained in the survey report will be used by the Ministry of Health to improve nursing services.

The organization of nursing on national and regional levels was terminated; and, to simplify nursing records and the reporting system in Government institutions, three 5-day workshops were held with a total of 45 participants.

To improve basic nursing education an 11-day workshop was held for 52 nurses. The implementation of recommendations made in the study of nursing schools in the Caribbean (AMRO-6301) was discussed and, as a result, a National Nursing Education Committee was formed.

A supplementary course in psychiatric nursing was organized, and inservice education programs were commenced in the General and the St. Anne's psychiatric hospitals in Port-of-Spain.

PAHO/RB

TRINIDAD AND TOBAGO-3300, Laboratory Services

Awards	Field of study	Country of study	Months
1	Laboratory services (microbiology)	Jamaica	6
1	Microbiology	Canada	12

PAHO/RB

TRINIDAD AND TOBAGO-4200 (-9), Nutrition

Objective: To develop a national nutrition program; and to train professional and auxiliary personnel in the field of nutrition.

Probable duration: 1961-

Assistance provided: Advisory services by Headquarters and by project AMRO-4201 personnel.

Work done: This program continued to show progress. Twenty-three school units were completed during the year and the premises were being used for teaching nutrition classes. In addition, 36 primary school teachers attended a 3-week food and nutrition course, raising the total number of schools in the pilot project to 45. The nutrition education courses conducted by food demonstrators were revised and were well attended by women in the community. Ten pilot health centers continued their nutrition education services.

A nutrition survey was conducted in one area by the Ministries of Health, of Education, and of Agriculture to collect data for detailed program planning.

FAO, UNICEF

**TRINIDAD AND TOBAGO-4201 (-11),
Pathogenesis and Prevention of Anemias**

Objective: To study the pathogenesis of anemias in order to identify the major environmental and hereditary etiological factors, for the purpose of studying practical measures to reduce the prevalence of anemias in the country.

Probable duration: 1963-1967.

Assistance provided: Advisory services by personnel assigned to project AMRO-4201; and 1 grant.

Work done: The survey on anemias was completed and the results were being tabulated. The analyses of serum amino acids in relation to the anemias were also completed. Still in progress were the analyses of the iron and protein content of foods and the study of the absorption of iron from 4 local foods.

PAHO/OF

USPHS-NIH

**TRINIDAD AND TOBAGO-4800, Medical
Records and Hospital Administration**

Objective: To organize the General Hospital in Port-of-Spain and operate it as the regional medical institution of the northern region of Trinidad and as the teaching hospital center for the University of the West Indies; to ensure that all necessary personnel, facilities, equipment supplies, funds, and management are available to achieve the desired goals; to coordinate the Hospital's work with that of the other branches of the health services; to organize departments of medical statistics records in the hospitals, clinics, and health centers of the Ministry of Health and Housing; and to train medical, statistical, and auxiliary personnel.

Probable duration: 1965-1968.

Assistance provided: 1 medical records librarian, 1 hospital administrator, 9 short-term consultants, and advisory services by professional personnel assigned to projects AMRO-3101 and -4800.

Work done: A Medical Records Committee was appointed and charged with the preparation of rules and policies for the Medical Records Department, planning new medical-record forms, and other pertinent activities related to the reorganization of the Department. Two in-service training courses were organized and carried out.

Medical care needs were assessed and priorities determined; the problems related to medical care services provided by hospitals were analyzed; and the plans for functional remodeling of existing hospitals and/or construction of new ones were evaluated.

PAHO/RB, WHO/UN-TA

**TRINIDAD AND TOBAGO-6400, Sanitary
Engineering Education**

Objective: To develop sanitary engineering teaching at the Faculty of Engineering of the University of the West Indies, including research and administration of services.

Probable duration: 1966-1969.

Assistance provided: Advisory services by professional personnel of Headquarters and of projects of other countries in Zone I.

Work done: 2 courses were held, one a continuation of the other, on: treatment of water and sewage, from 3 to 8 October; and water chemistry and sewage, from 10 to 15 October. The same 23 students attended both courses.

Studies were initiated with a view to the possible formation of a training center in sanitary engineering, which would meet the needs of the English-speaking population of the Caribbean area.

PAHO/RB

**UNITED STATES OF AMERICA-3100 (-10), Con-
sultants in Specialized Fields of Public Health**

Objective: To obtain the services of short-term consultants for the study of special public health problems.

Probable duration: 1958-

Assistance provided: 2 short-term consultants.

Work done: One of the consultants advised the Division of Accident Prevention of the United States Public Health Service, particularly on accidents among the aged, which occur mainly in the home, as well as on the organizing of emergency care services in the various states. The report, which contains recommendations on both subjects, was transmitted to the pertinent authorities.

The other consultant visited several work centers to study and advise on the occupational health program. This work will continue until March 1967.

WHO/RB

**UNITED STATES OF AMERICA-3101 (-11),
Fellowships for Health Services**

Awards	Field of study	Place of study	Months
1	Environmental sanitation	Switzerland	¼
1	Forensic medicine (psychiatry)	Denmark, Finland, Holland, Sweden, United Kingdom	3
1	Medical education (meningococcal disease)	Denmark, France, Netherlands, Norway, Sweden, United Kingdom	2
1	Ditto (teaching of preventive medicine)	Denmark, Ireland, Netherlands, United Kingdom, Yugoslavia	2½
1	Mental health (child psychiatry)	Denmark, France, Soviet Union, Italy	1½
1	Nursing pedagogy (public health)	Sweden, United Kingdom	1½
1	Organization of public health teaching (industrial hygiene)	Brazil, Chile, Peru	1½
1	Pneumoconiosis	Belgium, France, Germany, Italy, United Kingdom, Luxembourg, Netherlands	1½

VIII. PROJECT ACTIVITIES

Awards	Field of study	Place of study	Months
1	Public health nursing (administration)	Denmark, Sweden, United Kingdom	2
1	Ditto (administration of home care service)	Denmark, Finland, United Kingdom	1½
1	Public health teaching (hospital administration)	Congo, Ethiopia, Sierra Leone, Tanzania	2
1	School health	Denmark, Netherlands, Sweden	1½

PAHO/RB

UNITED STATES OF AMERICA-3102, Medical and Public Health Training

No fellowship was awarded against this project, but the balance of expenses incurred in connection with a 1965 award was paid off.

PAHO/RB

UNITED STATES OF AMERICA-3103 (-200), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Hospital administration (medical care)	Denmark, Finland, Germany, Sweden	3
1	Nursing education	India, Pakistan	2
1	Ditto, teaching (public health nursing)	United Kingdom	3
1	Organization of public health teaching (environmental sanitation)	India, Philippines, Thailand	3
1	Ditto (food microbiology)	Denmark, France, Netherlands, Sweden, United Kingdom	3
1	Public health dentistry	New Zealand	1½

WHO/RB

URUGUAY-0701, Rabies Control

Objective: To plan and carry out a rabies control program; and to develop the rabies diagnosis and vaccine production services.

Probable duration: 1966-

Assistance provided: 1 short-term consultant and advisory services by Pan American Zoonoses Center personnel; 2 vehicles and laboratory equipment; and supplies of vaccine, poison, and materials for the campaign.

Work done: A rabies control program was planned and organized, and activities were initiated in the Departments of Montevideo, Canelones, and Colonia. During the first 6 months, large-scale vaccination of dogs (over 362,000) was completed, thereby controlling the epizootic outbreak which began in August 1964. The 1965 incidence of 220 notified cases of animal rabies was reduced to 56 notified cases in 1966. The PAHO consultant also provided advisory services to the laboratories of the Ministry of Public Health regarding techniques for the production and control of rabies vaccine.

With the cooperation of the Pan American Zoonoses Center the Institute of Hygiene of the School of Medicine and the Ministry of Public Health conducted 1 course on rabies diagnosis techniques for 23 professionals and technicians of Government laboratories. A professor from the School of Veterinary Medicine received special training, at the Pan American Zoonoses Center, in fluorescent antibody techniques for the diagnosis of rabies.

PAHO/RB

URUGUAY-0900, Chagas' Disease

Objective: To study Chagas' disease and plan for its control.

Probable duration: 1966-

Assistance provided: 1 short-term consultant and advisory services by personnel assigned to project AMRO-0902.

Work done: A study was carried out to ascertain the present status of the problem. Available information indicated that the infection occurs in at least two thirds of the country and that the prevalence reaches 16% in some areas. The consultant recommended that the prevalence of the disease should receive further study.

PAHO/RB

URUGUAY-2200 (-18), Water Supplies

Objective: To plan and carry out national water supply programs.

Probable duration: 1960-

Assistance provided: 8 short-term consultants and advisory services by professional personnel from Headquarters and project AMRO-2106.

Work done: A thorough study and evaluation of the administration of the State Sanitary Works Administration—the national water and sewerage authority—was carried out. Closely allied with the study, 33 hours of formal classes on a wide range of topics pertinent to management of water supply and sewerage utilities were conducted for 40 students. Additional hours of discussion provided an effective program.

PAHO/CWSF

URUGUAY-3100 (-5), National Health Services

Objective: To develop integrated health services in 5 departments, and subsequently to extend equal services to the whole country.

Probable duration: 1955-1969.

Assistance provided: 1 sanitary engineer, 1 short-term consultant, and advisory services by the nurse assigned to project AMRO-3206; and equipment and supplies.

Work done: A Planning Committee was established in the Ministry of Public Health and began a study of health problems toward preparation of the national health plan. A Nursing Department, staffed with trained personnel, was

created in the Ministry, and work was begun to organize it and define its functions. The Department of Maternal and Child Health was also created in the Ministry but did not go into operation for lack of budgetary allocation.

Activities to strengthen the general health services continued to emphasize the improvement of hospital administration and, to that end, inservice training in nursing administration was given to 27 nurses from 2 hospitals in Montevideo. A course in public nursing was given for 12 graduate midwives from the capital and other parts of the country.

WHO/RB, WHO/UN-TA UNICEF

URUGUAY-3101 (-8), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Environmental sanitation (public administration)	Colombia, Costa Rica	½
1	Ditto (water pollution)	Chile	½
1	Hospital administration	Brazil	15
1	Hospital administration and medical care	Chile, Mexico, Puerto Rico, Venezuela	2
1	Laboratory services (trypanosomiasis)	Brazil, Chile, Venezuela	3
1	Nursing education (administration)	Chile, Colombia	2½
1	Nursing services (pediatrics)	Mexico	10
2	Public health planning	Chile	3½
1	Sanitary engineering (water and sewage analysis)	Brazil	½
1	Ditto (use of computers)	Peru	½
1	Ditto (use of computers)	Ditto	¾

PAHO/RB, WHO/RB

URUGUAY-3102 (-10), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Enteric diseases (bacteriology)	United States of America	¾
1	Environmental sanitation (sewage treatment)	Argentina	½
1	Nutrition	Guatemala	3½

PAHO/RB, PAHO/SFHP

URUGUAY-3500 (-14), Health Statistics

Objective: To improve the process of obtaining at the local level statistical data for the purpose of improving national health and vital statistics; and to train statistical personnel at the national and local levels.

Probable duration: 1965-1970.

Assistance provided: Advisory services by the statistician assigned to project AMRO-3506.

Work done: Uruguay published mortality statistics for the years 1963 and 1964.

A request for equipment, with priorities indicated, was resubmitted in late 1966 and cost estimates were being obtained.

URUGUAY-4300, Mental Health

Objective: To evaluate the mental health situation in the country and to formulate a national program which, as an integral part of the National Health Plan, will stress the improvement of welfare services and the introduction of modern methods for prevention, rehabilitation, research, and personnel training.

Probable duration: 1966-1969.

Assistance provided: 1 short-term consultant.

Work done: A study of the needs and resources of the country was carried out. The report of the consultant, which included recommendations, was sent to the Government.

PAHO/RB

URUGUAY-4800, Medical Care and Hospital Administration Services

Objective: To develop medical care and hospital administration services as part of the integrated health services of the country.

Probable duration: 1966-1970.

Assistance provided: 1 consultant with expert knowledge of medical care and advisory services by the nurse assigned to project AMRO-3206; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Hospital construction	Brazil, Chile, Mexico, Peru, Venezuela	2
1	Rehabilitation (orthopedic equipment)	Brazil	4

Work done: The Pasteur Hospital introduced a daily census of patients.

The consultant assisted in teaching 2 courses on administration of nursing services (Uruguay-6100) and the Government decided to extend this work to other hospitals in Montevideo—the Maciel Hospital and the Pereyra Rosell Hospital.

PAHO/RB, WHO/UN-TA

URUGUAY-6100 (-13), Training of Health Personnel

Objective: To strengthen the Dr. Carlos Nery School of Nursing; and to prepare the auxiliary personnel needed to carry out the health plans of the country.

Probable duration: 1960-1968.

Assistance provided: 1 short-term consultant and advisory services by the personnel assigned to projects Uruguay-4800 and AMRO-3206; and a limited amount of equipment and supplies.

Work done: Two 3½-month courses in administration of nursing services were conducted: 1 in Pasteur Hospital and the other in Pedro Visca Hospital for children. A total of 32 nurses attended these courses.

PAHO/RB

UNICEF

URUGUAY-6200 (-24), Medical Education

Objective: To strengthen medical education by improving the pedagogical approach to the teaching of medicine.

Probable duration: 1964-1968.

Assistance provided: Advisory services by the personnel assigned to project AMRO-6210.

Work done: A course entitled Laboratory of Human Relations and Medical Teaching was held at the School of Medicine of the University of the Republic, in Montevideo, from 8 to 21 March, for 39 professors; 2 from Argentina and 37 from Uruguay. The School repeated the course, from 17 to 29 October, for another 24 Uruguayan professors and 1 each from Mexico and Venezuela.

URUGUAY-6400, Sanitary Engineering Education

Objective: To improve the teaching of sanitary engineering in the regular engineering curriculum; and to develop a program of continuing education for professionals through intensive short courses.

Probable duration: 1965-1970.

Assistance provided: 1 short-term consultant and advisory services by professional personnel of Headquarters, of the Zone VI Office and of AMRO-2106 and -6400 projects.

Work done: The agreement with the University of the Republic was renewed and, from 24 to 29 October, 1 intensive course was held on the use of plastic piping in potable water supply systems. Also, in September, 1 short course was held on the administration of water supply undertakings for 40 officials of the State Sanitation Works.

PAHO/RB, WHO/RB

URUGUAY-6500, Veterinary Medicine Education

Objective: To strengthen the teaching at the School of Veterinary Medicine of the University of the Republic.

Probable duration: 1966-1971.

Assistance provided: Advisory services by personnel from Headquarters and the Pan American Zoonoses Center; technical publications and audiovisual aids for teaching programs; and one 1-month fellowship to study laboratory diagnosis of rabies in Argentina.

Work done: The Chair of Public Health and Preventive Medicine at the School of Veterinary Medicine was organized and a project was prepared for a special agreement with PAHO.

WHO/RB

VENEZUELA-0400, Tuberculosis Control

Objective: To study various procedures for the bacteriological diagnosis of tuberculosis in order to select the most suitable for general use throughout the country; and to organize short training courses for national and international personnel.

Probable duration: 1965-1967.

Assistance provided: 1 short-term consultant, advisory services by Headquarters and Zone I Office staff and by personnel assigned to project AMRO-0400; and equipment and supplies.

Work done: Comparative studies carried out in the National Tuberculosis Institute of Caracas on isolation of the tuberculosis bacillus were revised, using classical methods jointly with the simplified techniques formulated in the Institute of Tuberculosis Research of Prague, Czechoslovakia. The Course on Training in the Microbiology of Tuberculosis, which was sponsored by the Ministry of Health and Social Welfare of Venezuela and the Pan American Sanitary Bureau, was organized and conducted from January to February. This 4-week course was attended by 8 persons from Chile, Colombia, Ecuador, Mexico, Peru, and Venezuela who received fellowships awarded by the Organization to the aforementioned countries.

PAHO/RB

VENEZUELA-0500, Leprosy Control

Objective: To apply the most modern leprosy control methods, following appropriate administrative methods, in order to reduce as soon as possible the risk of contagion.

Probable duration: 1966-

Assistance provided: Advisory services by Headquarters and Zone I Office personnel and the short-term consultants assigned to project AMRO-0500.

Work done: For several years, the Government has been trying to improve its leprosy control program, to determine to what degree the established objectives are achieved, and at what cost the services operate, as well as to integrate leprosy control activities within the general health services of the country. To that end, the Government has been gradually and rapidly applying, in all its scope, the work methodology recommended in the Cuernavaca Seminar of 1963.

In 1964, as an initial step in the process of increasing the efficacy of the administration of the leprosy program, the Dermatology Division organized an appropriate system for registering leprosy data. For that purpose, training was given to medical and paramedical personnel in the pertinent techniques, including the notification, registration, tabulation, analysis, interpretation, and case-publication phases. In 1965 a detailed-study procedure for planning, organizing, implementing, and evaluating leprosy control programs was carried out. Also, the basic outlines of an epidemiological, sociological, and administrative research program were established as activities parallel to the control program.

In 1966 the Division of Sanitary Dermatology and the consultant on health administration of the Ministry of Health and Social Welfare, with technical guidance provided by PASB, evaluated the system for data registration which had been put into operation in 1965, on an experimental basis, in the State of Táchira. This system compiles information on personnel and equipment output in relation to the objectives of the program. The

evaluation demonstrated the usefulness of the method and the desirability of extending it to all entities of the leprosy control program in Venezuela. Consequently, the new administrative system was extended to the control programs of Caracas and the cities of Victoria, Guarenas, La Guaira, Puerto Cabello, and Valencia.

A study of a complete administrative methodology for general rehabilitation activities, including those pertaining to leprosy, was initiated. This study was being carried out because, in order to arrive at valid conclusions, it is necessary to know aspects which are not known at present and which will only become known by means of field studies especially prepared for that purpose. Studies of the various phases of the leprosy control program were continued with a view to proposing guidelines for each phase. The Division of Sanitary Dermatology was carrying out a study on leprosy, to which PASB contributed by recruiting an expert.

Personnel of the Division of Sanitary Dermatology, authorities of the Cooperative Health Services of the State of Táchira, and personnel of PASB held meetings in order to find ways to integrate leprosy control activities within the general health services. For that purpose it was necessary to completely revise work procedures and policy, including the statistical system. Although the integration was not achieved, the ground was prepared for its gradual attainment. In the meantime, the leprosy services will gradually assume other responsibilities in rural areas, where their principal activities are carried out.

Appreciable progress was achieved in the organization of a demonstration area that will serve in the future as a training center for national and international personnel.

As of 30 June 1966, Venezuela had 11,543 leprosy cases registered, of which 8,563 were under surveillance and 228 had been detected during the first 6 months of the year. On that date the number of registered contacts was 36,846, of which only 19,471 were under surveillance.

The following clinical forms of disability were diagnosed: dermatrophic, 39; mictrophic, 31; osteotrophic, 5; and ocular impairment, 2.

Through its contacts with the U.S. Bristol Laboratories the PASB assisted the Government of Venezuela in obtaining DDS in combination with aluminum hydroxide in aqueous solution for the treatment of leprosy cases in Venezuela. The substance is administered intramuscularly, and it is estimated that the administration of 5 cc (in 2 injections of 2½ cc each) every 30 days produces a blood level of sulfa sufficient to cause regression of the symptoms of the disease and negative bacteriological findings, within a relatively short time, in a high percentage of the patients treated. This new form of treatment will be carefully evaluated by the Venezuelan authorities as to clinical, bacteriological, epidemiological, administrative, and short- and long-term cost aspects.

PAHO/RB

VENEZUELA-0900, Plague Investigation

Objective: To determine the nature and extent of the plague problem in the country.

Probable duration: 1963-1968.

Assistance provided: 1 short-term consultant.

Work done: Complementary epidemiological studies were under way in the plague areas of Venezuela. Susceptibility trials in wild rodents and the behavior of fleas in transmitting the disease are also included in this endeavor.

PAHO/RB

VENEZUELA-0902, Diarrheal Diseases Study

Objective: To study the relative importance of bacterial and parasitic infections in diarrheal diseases in population groups (all ages) residing in communities supplied with water as against groups residing in communities lacking water supply.

Duration: 1964-1966.

Assistance provided: In 1965 consultant services were given by the WHO Advisory Group on Diarrheal Diseases, composed of 1 chief epidemiologist, 1 bacteriologist, 1 parasitologist, and 1 sanitary engineer; laboratory equipment and printed matter were also provided. In 1966, 1 short-term consultant was assigned to this project and personnel from Headquarters and Zone IV Office furnished advisory services.

Work done: From September 1964 until July 1965 a survey on the prevalence of diarrheal diseases was carried out in a cross section of the population of a number of small communities in the State of Trujillo. A followup survey in environmental sanitation was carried out from June 1965 to June 1966. Both surveys took place in water-supplied areas and areas lacking water supply.

The first survey revealed that the official reporting of diarrhea cases may be far below the true incidence rates, since the findings showed 2½ times more cases in 1 community and 7 times more in another as compared to the official records. On the basis of more than 20,000 interviews relating to children under 7 years of age, it was found that those under the age of 3 were the most vulnerable, and, within this group, those 1 to 2 years of age were the most susceptible (29.3%). The findings of the survey in environmental sanitation indicated that the improvement of housing alone is not enough. The provision of water to the population reduced the incidence of diarrhea, but a more effective reduction of diarrhea rates was reached when the availability of water was accompanied by adequate sanitation.

PAHO/RB

VENEZUELA-2100, Environmental Sanitation

Objective: To make a study of garbage and refuse disposal systems and determine the one best suited to the topography, climate, and other characteristics of Caracas.

Probable duration: 1964-

Assistance provided: Advisory services by professional personnel of the Zone I Office; and one 2-month fellowship to study sanitary engineering, in the United States of America.

VIII. PROJECT ACTIVITIES

Work done: Work was continued on the design and construction of 2 incinerators for Caracas.

PAHO/RB

VENEZUELA-2200 (-27), Community Water Supplies

Objective: To prepare long-range plans for urban water supply programs; to establish adequate water rates for financing the construction of new water supply systems and for expanding the existing ones; and to reorganize the management of the water supply service of Caracas.

Probable duration: 1960-1967.

Assistance provided: 1 short-term consultant and advisory services by Headquarters and Zone I Office professional personnel, and by the sanitary engineer assigned to AMRO-2101.

Work done: Early in 1966, financing to the extent of US\$38.5 million was received from international lending agencies for the first stage of this program. By the end of the year, construction on waterworks in urban areas was estimated to be 72% completed, water treatment works 48% completed, and sewerage and miscellaneous projects 49% completed (as compared with the respective goal set for 1966).

Financing for construction work to expand the Caracas water supply system was received from the International Bank for Reconstruction and Development (World Bank) to the amount of US\$21.3 million toward an estimated total cost of US\$92 million. Work on the Caracas system plus miscellaneous urban projects throughout the country totaled about 72% of the year's construction goal.

The National Sanitary Works Institute made progress in the development of its reorganization plan to improve its administration, accounting, maintenance and operating procedures, establish adequate water rates throughout the country, etc. New water rates were put into effect on 1 April 1966 which should place the service on a self-sustaining basis, as recommended by PASB consultants and the World Bank.

WHO/OF

FAO, IDB, UNICEF

VENEZUELA-2201 (-35), Rural Water Supplies

Objective: To provide water to 35% of the rural population living in localities of less than 500 inhabitants in the region south of Lake Maracaibo.

Probable duration: 1962-1966 (at the end of 1966 this project was incorporated as part of Venezuela-2200).

Assistance provided: 1 health educator in 1962 and part of 1963, 1 engineer from early 1963 through 1964, and in 1965 and 1966 advisory services by the engineer assigned to the Zone I Office.

Work done: The National Rural Water Supply Program in Venezuela began in the latter part of 1962 under the general objective of the Charter of Punta del Este of providing potable water supply to 50% of the rural population by 1971.

The Venezuelan Ministry of Health and Social Welfare is responsible for the water supplies in all communities with populations of 5,000 or less. The general long-range objectives were established as follows: to provide 100% of the communities having populations of 500-5,000 with a potable water supply by the end of 1966, and to begin planning in 1964 the provision of water supplies for communities of less than 500 so as to achieve 35% by 1968.

In the 500-5,000 population range, the Government constructed 697 public water supply systems from 1962 to 1966, providing service to a present population of 558,400, or a design population of 1,116,800. This brought to 1,075,800 the population served with water, or approximately 90% of the population in the 500-5,000 group. Some 180 communities in this category still lacked at the end of 1966 public water supply facilities, but the field and design work for these systems was in progress.

In the communities with less than a 500-inhabitant population, some 94 public water supply systems were constructed under this program since its beginning in late 1963. These additional systems provide the service of public water to approximately 612,500 inhabitants representing almost 30% of the population in this group. In the communities of 100-500 inhabitants some 62% still lack water service, while in those communities with less than 100 population 95% are without service.

While the Government was placing the major emphasis in its construction program of public water supplies for the less than 500 population range, economic and other reasons may dictate that the greater part of such construction will take place within the 100-500 inhabitant community rather than in the less-than-100 group. From the beginning of the program UNICEF participated in this sector by supplying equipment and materials in the amount of 25-30% of the total budget of the program. The respective Tripartite Plan of Operations Agreement is in effect until 31 December 1968. In the total rural community group an estimated 1,688,286 persons had been provided with public water supply service by the end of 1966. With an estimated rural population of 3,381,800 this means that approximately 49.9% of the rural inhabitants now have potable water and that the Punta del Este goals were achieved some 5 years in advance of the target date.

The Government spent Bs267.2 million (US\$59.5 million) from 1962 through 1966 in the National Rural Water Supply Program (communities with a population of 5,000 or less). Also included in the total cost are 2 loans of US \$10 million each, from the Inter-American Development Bank, granted in 1962 and 1965, and UNICEF commitments of US\$241,000 in 1965, \$180,000 in 1966, and a further commitment of \$205,000 in 1967.

An epidemiological survey and study of the incidence of diarrheal disease was carried out in several rural communities, some with and some without water supply, to evaluate the influence of water on the health, social, and economic conditions of the people. The first phase of the evaluation was completed in 1966 and the findings were published in a report titled "Study of Diarrheal Diseases in Venezuela" (see Venezuela-0902).

UNICEF

VENEZUELA-2300 (-16), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1958-

Assistance provided: 1 medical officer, 2 sanitation inspectors, and advisory services by personnel of project AMRO-2300.

Work done: Serious administrative and technical difficulties of the last 4 years which continued to hamper the progress and greatly limit the results of the campaign included: (a) insufficient budgetary funds for the adequate coverage of infested areas in the country; (b) problems with field personnel; (c) reinfestation of localities which had been considered negative by *a. aegypti* from still infested Venezuelan localities or imported from the Caribbean area; and (d) the nationwide resistance of the mosquito to chlorinated insecticides, which compels the use in the campaign of phosphorous compounds—more expensive and of shorter residual effectiveness than DDT or dieldrin.

In these circumstances and in order to ensure its success, the campaign was completely reviewed, and by the end of the year the possibility was being considered of increasing its budget and of taking all other measures to allow the eradication of the mosquito from the country in 6 years.

PAHO/RB

VENEZUELA-2400 (-38), Rural Housing

Objective: To plan rural housing programs that are adequate to protect health in agricultural areas, especially with regard to rural water supplies, in keeping with the Government's general plan of land reform and plans to build 45,800 rural houses in a 4-year period.

Probable duration: 1963-1967.

Assistance provided: 1 architect, specialist in rural planning and housing, and advisory services by personnel assigned to AMRO-2101 and -2400; and two 12-month fellowships to study sanitary engineering, in the United States of America.

Work done: 8,742 housing units were completed (about 70% of the target for the year).

Venezuela's Office of Economic Coordination and Planning (CORDIPLAN) was fulfilling its functions with regard to planning, research, and training activities, and the Ministry of Public Works, the National Agrarian Institute, the Office of Agricultural Village Planning (of the Rural Housing Division of the Ministry of Health and Social Welfare), and other entities were collaborating in the various aspects of housing projects. The Central University in Caracas included village planning in its study projects.

Proposals were in preparation regarding the apportioning of funds loaned by the Inter-American Development Bank for research in rural housing and farm buildings.

Several of the recommendations made by the adviser were implemented during the year, such as the organization of courses to train nationals in planning for rural areas. Plans were made to hold an Inter-Regional Seminar

on Rural Housing (in April 1967 in Maracay) under auspices of the Government and the United Nations.

WHO/RB

VENEZUELA-3100, Health Services

Objective: To strengthen the organization of the Ministry of Health and Social Welfare and to develop the national health planning process.

Probable duration: 1964-1967.

Assistance provided: Advisory services by personnel assigned to project AMRO-3101.

Work done: The Health Planning Unit of the Ministry of Health and Social Welfare prepared the first draft proposal for program-budgeting (1967), with full participation of staff in the various operational levels. The instructions and guidelines to be used in the collection of data in 1967 were also prepared; this will be a fundamental step in the planning process. A general study of the present administrative setup was carried out with emphasis on operational costs.

A 2-month course in methodology of health planning was conducted at the School of Public Health for 34 health workers of the Ministry: 23 physicians, 2 engineers, 4 administrative officers, 3 economists, and 2 public health statisticians.

PAHO/RB

VENEZUELA-3101 (-9), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Administrative procedures for lay administrators	Chile	4
1	Dental care and hygiene	Brazil	2½
1	Dental public health	Ditto	11
1	Environmental sanitation (ground water development)	Chile	½
1	Epidemiology	United States of America	12
1	Health statistics (accident control)	United States of America	1
1	Public health nursing	Puerto Rico	12
1	Veterinary pedagogy (veterinary public health)	United States of America	12

PAHO/RB

VENEZUELA-3102 (-10), Fellowships for Health Services

Awards	Field of study	Place of study	Months
2	Clinical and social pediatrics	Chile	3
1	Ground water development	Colombia	2½
1	Medical pedagogy (biochemistry)	Belgium	12

VIII. PROJECT ACTIVITIES

Awards	Field of study	Place of study	Months
2	Public health administration (laboratory services)	Brazil, Chile, Mexico, Peru, Puerto Rico	3
1	Ditto (radiological health)	United States of America	12
3	Public health planning	Chile	3½
3	Sanitary engineering	United States of America	12
1	Tuberculosis control	Czechoslovakia, France, India, Russia, Switzerland, United Kingdom	2

WHO/RB

VENEZUELA-3300, Public Health Laboratories

Objective: To strengthen the organization of the Division of Laboratories of the Ministry of Health and Social Welfare at the central level; to standardize techniques and procedures; and to gradually reorganize local and regional laboratories.

Probable duration: 1966-1970.

Assistance provided: Advisory services by Headquarters staff and the consultant assigned to project AMRO-3301; and one ¾-month fellowship for the study of enteric diseases (bacteriology), in the United States of America.

Work done: The Government and the PAHO signed an Agreement for implementing this program. A Plan of Operations was also prepared.

PAHO/RB

VENEZUELA-3301 (-18), National Institute of Hygiene

Objective: To broaden the Institute's viral studies and increase its production of lyophilized vaccines.

Probable duration: 1964-1967.

Assistance provided: Advisory services by Headquarters professional personnel and by the consultant assigned to project AMRO-3301; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Laboratory services (smallpox and microbiology)	Argentina, Brazil	1
1	Virology (preparation of vaccine and sera)	Brazil	3
1	Microbiology (laboratory techniques)	Ditto	11

Work done: Early in the year an evaluation was made of the techniques used in the production of rabies vaccine.

Advanced studies in equine encephalitis were continued.

A new laboratory for the study of arbovirus began functioning at the School of Bioanalysis in October.

PAHO/RB, PAHO/OF

VENEZUELA-4200 (-44), Nutrition

Objective: To reorganize the Institute of Nutrition; to develop a suitable nutrition program on a national scale; and to train personnel.

Probable duration: 1965-

Assistance provided: Advisory services by Headquarters and project AMRO-4201 personnel; and the following fellowships:

Awards	Field of study	Place of study	Months
2	Applied nutrition for physicians in public health	Guatemala	2½
1	Public health teaching (nutrition)	Colombia, Guatemala, Mexico	2

Work done: The Institute of Nutrition prepared, with PASB assistance, a first draft of a 1966-1968 plan which included fundamental changes in the Institute's internal organization, scope of activities, and relationship with the Ministry of Health and Social Welfare at central and fields levels. Close coordination was established with the School of Public Health, which will train staff for the Institute.

PAHO/RB

VENEZUELA-4300 (-2), Mental Health

Objective: To review and evaluate the mental health problem in the country; and to plan a national mental health program integrated with the National Health Plan and providing for care and rehabilitation of patients, training of personnel, research, and prevention of mental disorders.

Probable duration: 1964-1968.

Assistance provided: 1 psychiatric nurse and advisory services by the nurse assigned to project AMRO-3201; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Mental health	United States of America	9
1	Nursing services (psychiatry)	Puerto Rico	3
1	Social work (psychiatry)	Ditto	12

Work done: Evaluation of existent conditions in the nursing services of psychiatric hospitals of Caracas was continued, and plans were formulated for the establishment of an inservice training program in the Psychiatric Hospital of Caracas. With the collaboration of the Ministry of Health and Social Welfare, the Second Advanced Course in Psychiatric Nursing was conducted in the Armed Forces Hospital. The 9 nurses who completed the course were employed in service or educational positions.

PAHO/RB, WHO/UN-TA

VENEZUELA-4400, Dental Health

Objective: To formulate a national program of dentistry which will include preventive and dental care services,

training and distribution of personnel, and teaching facilities.

Probable duration: 1965-1968.

Assistance provided: Advisory services by Headquarters and Zone I Office personnel and by the short-term consultants assigned to project AMRO-4400.

Work done: The nationwide program planned in 1965 was approved by the Ministry of Health and Social Welfare, the Central University, and the College of Dentistry. A special committee composed of representatives of the Ministry, the University, and the College was established, an executive coordinator was appointed, and the committee began to function. A plan of operations to carry out the program was prepared and was under study. As part of the overall program, a feasibility study was prepared to estimate whether the personnel available in the country could carry out the dental-health diagnosis of the country, an analysis of the dentistry resources available, and an evaluation of the teaching in the field of dentistry. The International Center for Training in Dental Epidemiology and Research of the University of São Paulo, Brazil, will train the dentists who will participate in this study.

Foundations were laid with a view to establishing in the Central University a national laboratory for research and training of personnel, in order to test, standardize, and control the quality of dental supplies.

A round-table conference on public health aspects was held at which a representative of the Pan American Sanitary Bureau presented a paper on the Social Function of Dentistry.

VENEZUELA-4600 (-28), Industrial Hygiene

Objective: To strengthen the industrial hygiene and occupational health services provided by the Ministry of Health and Social Welfare.

Probable duration: 1962.

Assistance provided: Consultant services by the adviser on industrial hygiene assigned to project Chile-4601; and one 6-month fellowship to study occupational health in Chile.

Work done: The industrial hygiene program acquired additional staff and equipment. Field work was expanded.

PAHO/RB

VENEZUELA-4800, Medical Care Services

Objective: To prepare and develop an organizational and operational plan for hospitals and health centers, with a view to achieving the best possible coordination and utilization of the resources available; and to train the personnel needed.

Probable duration: 1966-1971.

Assistance provided: 4 short-term consultants and advisory services by personnel assigned to project AMRO-3201; and one 9-month fellowship to study leprosy control (surgery of the hand), in India and the United States of America.

Work done: An evaluation was made of the nursing serv-

ices at the amphitheater of the University Hospital, as a preliminary to the initiation of plans for administrative organization and the program for the maintenance of hospital installations and equipment was analyzed.

The University Hospital organized a 12-week training course on the organization of amphitheatres and of intensive care units for 13 nurses. As a consequence of this activity, a start was made on the reorganization of the amphitheatres of the University Hospital.

Preliminary studies were completed on the development of hospital engineering and plant and equipment maintenance services, as an essential complement to the program of medical building work carried out in recent years by the Ministry of Health and Social Welfare. The results of these studies revealed that, in theory, satisfactory conditions existed for the formation of an Institute of Hospital Engineering and Plant and Equipment Maintenance to undertake staff training, engage in scientific research and provide advisory services to hospitals throughout the country as well as, possibly, to extend its facilities in the future to other countries of the Hemisphere and develop into a Latin American Center of Hospital Engineering.

WHO/RB

VENEZUELA-4801 (-37), Rehabilitation

Objective: To provide rehabilitation services to the incapacitated, through the creation of a national rehabilitation institute and of rehabilitation units attached to the hospitals and health centers of the country.

Probable duration: 1963-1967.

Assistance provided: 1 physiotherapist and advisory services by the specialist in rehabilitation assigned to project AMRO-4807; and a limited amount of equipment and supplies.

Work done: 13 students finished the 2-year course sponsored by the Ministry of Health and Social Welfare and offered by the School of Physiotherapy at the Central University.

WHO/RB

VENEZUELA-6100 (-19), School of Public Health

Objective: To broaden the scope of the School of Public Health and improve its teaching.

Probable duration: 1961-1967.

Assistance provided: 1 nutritionist and 1 health educator; and equipment and supplies.

Work done: The work of reorganizing the School of Public Health continued with the consolidation of the Department of Health Education and the establishment of the Department of Nutrition. A document in which the administrative structure of the Department of Nutrition, its function and activities are specified was prepared; the need of adding the teaching of nutrition in the curriculum of the School was ascertained; and the programs for instruction in nutrition for the Course in Hospital Administration and for the Advanced Course in Public Health were revised.

VIII. PROJECT ACTIVITIES

Two professors in the Department of Health Education returned from abroad after successfully completing their specialization in health education under PAHO/WHO fellowships; also, 2 instructors of social sciences in medical schools received specialized training at the School of Public Health. Two nutritionists finished studies at INCAP and returned to the Department of Nutrition to assist in the establishment of nutrition services in the health centers used for exercises in field work.

Better coordination was established between the School of Public Health and the National Institute of Nutrition.

The School provided 493 hours of training in health education to 184 students enrolled in 10 courses: in advanced public health (equivalent to the MPH), 120 hours; at the intermediate level, for rural physicians who work in health clinics, 20 hours; in specialization in epidemiology, 18 hours; in postgraduate internal medicine, 15 hours; in postgraduate pediatrics, 40 hours; in health inspection, 120 hours; in advanced nursing, 80 hours; for dental students at the intermediate level, 30 hours; and for the 2nd and 3rd years of study in the School of Dietetics, 50 hours.

It was also possible to include the teaching of health education and social sciences in the curricula of all the country's medical schools.

WHO/RB

VENEZUELA-6200 (-17), Medical Education

Objective: To strengthen medical education by improving the teaching of basic sciences and preventive and social medicine and the pedagogical approach to the teaching of medicine.

Probable duration: 1958-1967.

Assistance provided: 1 medical officer and 2 short-term consultants.

Work done: Discussions were held with the pertinent authorities regarding the aspects of premedical education and the organization of the medical school libraries of the universities of the country. The José Vargas School of Medicine in Caracas and the School of Medicine in Valencia made an assessment of their teaching programs.

The Government and the Venezuelan Association of Medical Schools, with assistance from PASB, made plans to hold the III Seminar on Medical Education in 1967. A pre-Seminar questionnaire was prepared to gather information for the purpose of evaluating the progress achieved by the schools since the previous seminar.

PAHO/RB, PAHO/OF

RF

VENEZUELA-6300 (-14), Nursing Education

Objective: To establish at the School of Public Health advanced courses in nursing education and administration of nursing services; and to plan for establishing a university school of nursing.

Probable duration: 1959-1968.

Assistance provided: 1 short-term consultant; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Nursing education	Colombia	11½
1	Ditto	Ditto	12
1	Ditto (pediatrics)	Ditto	12

Work done: Specific recommendations were made with a view to improving existent nursing schools and in relation to the possibility of organizing a nursing school attached to the Central University.

PAHO/RB, WHO/UN-TA

VENEZUELA-6400 (-42), Sanitary Engineering Education

Objective: To strengthen the teaching of sanitary engineering within the regular courses for civil engineers in 4 universities; to develop a postgraduate course at the Central University of Venezuela; and to establish laboratories for research and teaching practices.

Probable duration: 1964-1968.

Assistance provided: 1 chief technical adviser, 4 professors, 4 short-term consultants, 1 driver, and 1 secretary; equipment and supplies; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Sanitary engineering	United States of America	12
1	Ditto (teaching)	Mexico, Puerto Rico	½

Work done: The professors served full-time, respectively at the Andrés Bello Catholic University and Central University (Caracas), University of Los Andes (Mérida), and University of Zulia (Maracaibo).

At Catholic University the newly constructed laboratory building was equipped and placed in operation.

Discussions were held regarding the development of a graduate program at Central University, where a special technical course on operation of water treatment plants was organized. In lieu of remodeling in one of the existing engineering buildings, the University arranged to have included in the budget funds for the construction of a 3-story building for the sanitary engineering library, adjacent to the plot where a new civil engineering building is to be constructed on the campus.

New library buildings were nearing completion at the University of Los Andes and the University of Zulia.

Each of the 4 universities received a large amount of laboratory equipment and books for its library. Additional lists of equipment, supplies, and books were placed on order.

WHO/UN-DP, WHO/OF

VENEZUELA-6500, Veterinary Medicine Education

Objective: To cooperate with the Schools of Veterinary Medicine in the country in order to strengthen professional

education, with special emphasis on preventive medicine and public health.

Probable duration: 1966-1971.

Assistance provided: Advisory services by Headquarters personnel; and one 3/4-month fellowship to study the teaching of the structure of veterinary medicine, in the United States of America.

Work done: A study was made evaluating the curriculum, installations and teaching facilities at the schools of veterinary medicine at Maracay and Maracaibo, attached, respectively, to the Central University and to the University of Zulia. On the basis of this report a program was prepared, which will be reviewed at the end of the year.

PAHO/RB

VENEZUELA-6600, Dental Education

Objective: To train auxiliary dental personnel and to strengthen the programs for the teaching of dentistry, particularly in the preventive and social fields.

Probable duration: 1966-1970.

Assistance provided: 3 short-term consultants and advisory services by Headquarters personnel; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Dental pedagogy (pediatric)	Colombia	1/2
1	Ditto	Brazil, Colombia	2
1	Dental education (public health dentistry)	Brazil	11

Work done: The Department of Preventive and Social Dentistry of the School of Dentistry of the Central University reorganized the Social Sciences Course and drew up a plan for the training of professors in dental supplies. The School expanded its program of extramural student practice.

The School of Dentistry of the University of Zulia took the first steps toward the establishment of an experimental dental school that will turn out new types of personnel for community service. A pilot curriculum was drafted, and 1 course on the teaching of dentistry was conducted for the faculty.

A plan of action was prepared for the School of Dentistry of the University of Los Andes.

PAHO/RB, WHO/RB

WEST INDIES-2200 (-18), Water Supplies

Objective: To prepare plans and designs for the improvement and expansion of existing water supply systems and the construction of new ones in several islands of the eastern Caribbean.

Probable duration: 1962-1968.

Assistance provided: 2 sanitary engineers, 2 short-term consultants, and advisory services by professional personnel assigned to the Zone I Office.

Work done: Antigua achieved considerable progress in

its program: the existing facilities were mapped, the ground water potential of Christian Valley was established, and rainfall data were being collected. Two more emergency wells were drilled during the year. Loan applications (based on advisory reports submitted in 1965) were prepared and presented to the respective aid offices of Canada and the United Kingdom for consideration by the loan agencies of the Governments.

In Dominica an application to be presented to UNICEF for supplies and equipment was under preparation. A short-term consultant provided advice on the creation of a water supply authority, but no decision had been made at year's end.

The islandwide water survey of existing facilities in Grenada and the plans and designs for new construction were completed.

The water authority of St. Lucia (created in 1965) was progressing satisfactorily. About 20% of construction work on the Castries project was achieved during the year. Advice on water rates and financing was sought under the Canadian Office for External Aid, which allocated US\$250,000 toward the cost of construction of waterworks of the islandwide project.

PAHO/CWSF, WHO/UN-TA

WEST INDIES-3101 (-4), Fellowships for Health Services

Awards	Place of origin	Field of study	Place of study	Months
1	Antigua	Administration of health services	Jamaica	2 1/2
2	Barbados	Ditto	Ditto	2 1/2
1	Bermuda	Ditto	Ditto	2 1/2
1	Dominica	Ditto	Ditto	2 1/2
1	Grenada	Ditto	Ditto	2 1/2
1	St. Kitts	Ditto	Ditto	2 1/2
1	St. Lucia	Ditto	Ditto	2 1/2
1	Barbados	Nursing education, teaching	Ditto	12
1	Grenada	Ditto	Ditto	12

PAHO/RB

WEST INDIES-3102 (-5), Fellowships for Health Services

Awards	Place of origin	Field of study	Place of study	Months
1	Antigua	Public health nursing (administration)	Jamaica	12
1	Bahamas	Laboratory services (medical technology)	Ditto	6
1	Barbados	Health statistics	Canada	6 1/2
1	Barbados	Rehabilitation (occupational therapy)	United States of America	6
1	Grenada	<i>Aedes aegypti</i> control	Guyana, Venezuela	1
1	Grenada	Nursing services (administration)	Jamaica	12
1	Montserrat	Environmental sanitation (meat inspection)	Jamaica	3 1/2

VIII. PROJECT ACTIVITIES

Awards	Place of origin	Field of study	Place of study	Months
1	Montserrat	Health education	Ditto	4
1	St. Lucia	Environmental sanitation (sanitary inspection)	Ditto	11
1	Antigua	Health statistics (course)	Jamaica	3
4	Barbados	Ditto	Ditto	3
1	Bermuda	Ditto	Ditto	3
1	Grenada	Ditto	Ditto	3
1	Montserrat	Ditto	Ditto	3
1	Antigua	Laboratory services (medical technology) (course)	Jamaica	12
1	Barbados	Ditto	Ditto	12
1	Grenada	Ditto	Ditto	12
3	Antigua	Nursing services (administration and supervision) (course)	Barbados	4
10	Barbados	Ditto	Ditto	4
3	Dominica	Ditto	Ditto	4
1	Grenada	Ditto	Ditto	4
1	Montserrat	Ditto	Ditto	4
3	St. Kitts	Ditto	Ditto	4
3	St. Vincent	Ditto	Ditto	4

WHO/RB

WEST INDIES-3104 (-27), Health Services in Montserrat

Objective: To develop a general health program based on the strengthening and expansion of existing services.

Probable duration: 1965-1968.

Assistance provided: 1 medical adviser and advisory services by the nurse assigned to project AMRO-6301; and one 12-month fellowship to study public health administration in the United States of America.

Work done: A reorganization of the hospital statistics system was begun. A family planning unit was organized, and the 3 main health centers were authorized to offer advisory services and prescribe contraceptive methods for persons referred by medical officers and public health nurses. The post of chief surgeon was established (2 hospitals), the surgery at Plymouth Hospital was prepared for use, and outpatient departments were set up at other hospitals. The largest number of hospital admissions was for malnutrition and gastroenteritic diseases. The parents of these patients were given practical guidance in the care and feeding of their children.

The number of medical calls increased by 75% at the 3 central health centers and 9 outlying health posts. The prenatal calls handled totaled 207, and 216 newborn infants were registered. A total of 560 DPT and 1,288 smallpox vaccinations were administered. The dental hygiene program reported 14,800 extractions, 1,260 fillings, and 370 periodontal treatments.

The environmental sanitation program was continued with inspections of public establishments by technical personnel. Fourteen latrines were built, 1 water source was protected, and inspections were made in connection with the *Aedes aegypti* eradication program.

Advanced inservice training (10 months) was received by 8 nurses.

PAHO/RB, WHO/UN-TA

UNICEF

WEST INDIES-3200 (-3), Nursing Services

Objective: To improve the nursing services in the islands in the eastern Caribbean.

Probable duration: 1959-1968.

Assistance provided: 1 full-time nurse adviser and consultant services by the nurses assigned to AMRO-3201 and -6301; and one 12-month fellowship each to a fellow from Dominica, Grenada, St. Lucia, and St. Vincent for studies in public health nursing, in Jamaica.

Work done: In Barbados the antenatal (prenatal) records were revised and public health nurses held monthly meetings regularly. Antenatal and child welfare clinics gave consultations to 67% of the pregnant women and attended 39% of the newborn infants; 69% of the infants were vaccinated with DPT, 76% against poliomyelitis, and 73% against smallpox.

Public health nurses serviced Dominica's 5 health areas and held monthly meetings. Consultations were provided by antenatal and child welfare clinics to 67% of the pregnant women and 64% of the newborn.

In Grenada a study of nursing resources was initiated; and a comprehensive district nursing service was implemented by assigning 5 nurses to health zones and providing them with means of transportation and living quarters.

Montserrat had public health nurses servicing its 3 health areas. Antenatal child welfare clinics provided consultations to 99% of the island's pregnant women and 84% of their newborn; 50% of the infants were vaccinated with DPT and 85% against smallpox.

In St. Lucia a 2-week study of nursing resources and needs was carried out, a new monthly form to increase the efficiency of administration and supervision of district nurses was devised, and 2 of the island's 7 health areas had public health nurses.

Nutrition education was incorporated into the regular activities of all the antenatal and child welfare clinics of Barbados, Dominica, Montserrat, and St. Lucia.

The follow-up referral system between hospitals and districts was working well in Dominica and Montserrat and was initiated in Barbados, Grenada, and St. Lucia. Grenada, in addition, to strengthen the follow-up of discharged patients, held three 3-day workshops—for a total of 28 nurses and 16 senior students—on the planning for, continuity, and evaluation of care of patients.

Two 2-week courses in orientation to public health nursing were conducted for district nurses—1 each in Dominica (8 nurses) and St. Lucia (8 nurses)—and a 2-week seminar in health education was held in Montserrat for 50 health, education, and community volunteer workers.

PAHO/RB, WHO/RB

UNICEF

WEST INDIES-3201 (-30), Pediatric Nurses Course

Objective: To improve the care of sick children by providing opportunities for supervisory staff in children's wards of hospitals in the Leeward and Windward Islands to acquire new skills related to modern pediatric nursing procedures, principles of ward management, and techniques of health education.

Duration: 1964-1966.

Assistance provided: Consultant services by PAHO/WHO nurse advisers assigned to other projects in the area and small amounts of equipment and supplies.

Work done: The first of the two 6-month courses on pediatric nursing held under this project at the University Hospital of the West Indies, at Kingston, Jamaica, began in September 1964 and the second ended in April 1966. UNICEF contributed 1 fellowship each to Barbados, Montserrat, and St. Kitts; 2 each to Antigua, Grenada, St. Lucia, and St. Vincent, and 3 to Dominica, thus providing special training to a total of 15 nurses. In-between the courses, the Foundation for International Medical Services provided travel funds for 2 nurses from the University Hospital to visit the Leeward and Windward Islands in order to follow up and assist the graduates of the first course in applying their new knowledge, particularly to improve the services in the local pediatric wards. The nurses' findings during these visits were used to modify the content of the second course. The effect of these courses on the pediatric nursing services of the above-mentioned islands was evident at the end of 1966.

PAHO/OF

UNICEF

WEST INDIES-3300, Laboratory Techniques

Two 6-month fellowships were awarded for fellows from Nassau to study laboratory services (medical technology), in Jamaica.

PAHO/RB

WEST INDIES-3500, Health Statistics (Grenada, Montserrat, St. Lucia)

Objective: To strengthen health statistical services by integrating statistical personnel into the operational health team.

Probable duration: 1966-

Assistance provided: Advisory services by the statistical adviser assigned to AMRO-3501; and three 3-month fellowships to study health statistics, in Jamaica.

Work done: Statistical personnel trained in the intermediate-level course held at the University of the West Indies in 1965 were strengthening the health statistical services in Grenada, Montserrat, and St. Lucia. Both Montserrat and Grenada added a person trained in 1966 to their statistical services.

WHO/UN-TA

WEST INDIES-4200 (-22), Nutrition

Objective: To improve the level of nutrition in Antigua, Barbados, Dominica, Grenada, Jamaica, Montserrat, St. Kitts, St. Lucia, and St. Vincent through training courses for technical and local personnel, school gardens, and nutrition education in schools and health centers.

Probable duration: 1962-1967.

Assistance provided: Advisory services by project AMRO-4201 personnel.

Work done: A draft Plan of Operations to carry out an Applied Nutrition Program in Barbados was prepared. The position of dietitian was reclassified and recruitment was underway, and the establishment of a position for a public health nutritionist was under consideration. A review was made of the operation of the dietary department of the Queen Elizabeth Hospital and hospital authorities intend to implement the ensuing recommendations when a dietitian is secured. The school feeding project progressed satisfactorily.

Dominica was making efforts to recruit a public health nutritionist, in order to initiate a nutrition program, and for the same purpose both Grenada and St. Vincent were considering the establishment of a post for a public health nutritionist.

As regards St. Kitts-Nevis-Anguilla a 3-week course was conducted for 16 teachers from 5 pilot schools in the latter 2 islands. A nutrition course was again offered to 1st and 2nd year nursing students. Nutrition instruction was also provided for nurse auxiliaries and seminars were held for staff of day-care nurseries, community counselors, and members of 4-H clubs. Height and weight data were collected on 4,684 children from pilot schools. The public health nutritionist returned to St. Kitts in September after a year's training at Teachers College, Columbia University (U.S.A.).

The Applied Nutrition Program was developing satisfactorily in St. Lucia. Deaths due to malnutrition were low during the year. Dietary surveys were carried out in 9 schools in the project and included collecting height and weight data on 5,477 children in 5 pilot schools and 4 control schools. Nutrition education programs, intensified and extended during the year, consisted of training for undergraduate nurses, public health nurses, undergraduate students in the Teacher-Training College, a 30-hour evening course for teachers, weekly classes for adolescent girls, and continuation of educational programs in schools, health centers, and community centers.

At the request of several Governments in the Caribbean, a study of the operations of the dietary departments of several hospitals and institutions was begun towards the end of the year.

UNICEF

WEST INDIES-4802, Fellowships for Training in Hospital Administration

Four awards to attend a 4-month ward sisters' course on nursing administration and supervision in Barbados.

WHO/UN-TA

VIII. PROJECT ACTIVITIES

AMRO-0101, Epidemiology (Zone I)

Objective: To assist in improving the control and eradication of communicable diseases in the countries and territories of the Zone; to stimulate the establishing of epidemiological services and guide their development; to stimulate and conduct epidemiological investigations; and to train staff.

Probable duration: 1966-

Assistance provided: 1 epidemiologist and 1 short-term consultant.

Work done: An appraisal was made of the epidemiological problems prevalent in countries within the Zone. Supervision and technical guidance were furnished to malaria and *Aedes aegypti* eradication programs.

Assistance was also provided to the control of rabies in Grenada and of leprosy in Venezuela. A special study for a new system of morbidity reporting was made and discussed with the authorities concerned, and a field trial was being planned.

PAHO/RB

AMRO-0102 (-162), Epidemiology (Zone II)

Objective: To stimulate the development of programs for the eradication or control of communicable diseases and for better reporting services in the countries of Zone II; and to advise the Governments on new methods and techniques of control of those diseases and on problems related to the application of the International Sanitary Regulations.

Probable duration: 1965-

Assistance provided: 1 epidemiologist.

Work done: Activities were aimed at the organization and development of epidemiological services, the training of professional and auxiliary personnel, and the improvement of control measures in emergencies and the registration of cases of notifiable diseases.

In Cuba the epidemiologist conducted classes at the School of Public Health, participated in seminars, cooperated in the revision of the study program and in the planning of material for practical instruction. In Haiti he cooperated with the short-term consultant of project Haiti-0600 in a survey on the yaws situation in the country and collaborated with the national authorities on the plans for organizing the epidemiological activities in the Archaie demonstration area. In the Dominican Republic he helped organize epidemiological services on the peripheral, intermediate, and central levels.

PAHO/RB

AMRO-0103 (-203), Epidemiology (Zone III)

Objective: To stimulate and guide the development of epidemiological services in the countries of Zone III; to advise the Governments on programs to control or eradicate communicable diseases; to coordinate the development of such programs and ensure the continuing exchange of epidemiological information; to study and

suggest to the countries new control techniques; to promote and participate in epidemiological investigations; to stimulate case reporting; to advise on the application of the International Sanitary Regulations; and to coordinate and participate in personnel training activities.

Probable duration: 1961-

Assistance provided: 1 epidemiologist.

Work done: The epidemiologist advised the countries in the Zone on the planning and execution of programs, the development of technical standards and procedures for the control of intestinal diseases, whooping cough, measles, poliomyelitis, and venereal diseases.

The first stage in the structuring of the epidemiological services was completed with the placement of specialized personnel at the central level. Progress was made in the planning of efforts and the setting of annual targets for each administrative region and health center.

Encouragement was given to the coordination of programs among countries. Differences among standards, activities, and results, very marked a few years ago, were so reduced that uniformity of epidemiological action is now within reach. As a result, certain programs, such as *Aedes aegypti* surveillance, can now be conducted along similar lines in the various countries.

The epidemiologist also participated in personnel training and advised the countries on the application of the International Sanitary Regulations.

PAHO/RB

AMRO-0104, Epidemiology (Zone IV)

Objective: To promote and orient the development of epidemiological services in Zone IV countries; to advise the Governments as to their programs for the control or eradication of communicable diseases; to coordinate the development of those programs and establish a continuous exchange of epidemiological information; to promote the reporting of cases of communicable diseases; to study the application of new control techniques and to recommend their use to the countries; to promote and participate in epidemiological research; to coordinate and participate in personnel training activities; and to provide advisory services in the application of the International Sanitary Regulations.

Probable duration: 1966-

Assistance provided: 1 epidemiologist.

Work done: Advisory services were provided to the countries and territories of the Zone in their epidemiology programs, and assistance was furnished in the implementation of such programs or in the preparation of programs for the control of communicable diseases.

The epidemiological services of certain countries of the Zone have a definite structure, particularly at the central level, with statistical systems, complete public health laboratories, and programs in process of implementation. The services which are in a less advanced state of development must improve their system of statistical reporting—the basis for the planning and implementation of programs—and must also adapt their field activities to the needs of the country. Consequently, efforts were made

to promote the development of public health laboratory services, as well as those pertaining to the control of communicable diseases and the reporting of cases, and to improve the planning, implementation and evaluation of programs, as well as to collaborate in the training of personnel.

PAHO/RB

AMRO-0106 (-163), Epidemiology Zone VI)

Objective: To stimulate the development of programs for the eradication or control of communicable diseases and improve reporting services in the countries of Zone VI; and to advise the Governments on the application of modern techniques and methods for the control of these diseases and on problems related to the International Sanitary Regulations.

Probable duration: 1958-

Assistance provided: 1 epidemiologist and advisory services by the short-term consultant assigned to project Uruguay-0701.

Work done: The countries of the Zone were advised in the various fields of control of communicable diseases and chiefly in the reorganization of epidemiological services and the preparation and execution of epidemiological control programs.

In Argentina the epidemiologist cooperated in an evaluation of the malaria eradication campaign and in the one for tuberculosis control at Santa Fe, and participated in the study and formulation of an immunization campaign for project Argentina-3102 and in the study and control of a yellow fever outbreak in the Provinces of Misiones and Corrientes; he took part in a survey on venereal diseases aimed at determining the magnitude of the problem and in the formulation of a control program, and assisted in the organization and development of a course on laboratory methods for the diagnosis of those diseases.

PAHO/RB

AMRO-0107, Parasitic Diseases

Objective: To cooperate with the Governments in the planning and execution of research and control programs related to parasitic infections and in the selection of priorities; and to stimulate international cooperation in the development of better control procedures.

Probable duration: 1966-

Assistance provided: 1 parasitologist and 1 short-term consultant from WHO (Geneva); and drugs.

Work done: Support was given to a study, in Brazil, of the use of Hetrazan in cooking salt for the control of bancroftian filariasis. At the level of 0.4% in the salt the drug was not degraded by cooking, was accepted without complaint, and reduced microfilaria counts by 70 to 90% in 2 weeks. A program for the study of paragonimiasis in Ecuador was assisted by provision of drugs.

All areas where onchocerciasis is endemic were visited for the purpose of discussing control programs.

PAHO/RB

AMRO-0108 (-280), Research Training Program in Virology (Cornell University Medical College)

Objective: To study the ecology of arboviruses, especially the role of migratory birds in the spread of arbovirus in temperate and tropical areas in the northern part of the Hemisphere; and to provide research training in this field.

Probable duration: 1961-1971.

Assistance provided: Advisory services by Cornell University and Headquarters professional personnel.

Work done: Research concerning encephalitis viruses transmitted by arthropods in Mexico and Central America, being carried out under this program by the Department of Microbiology, Cornell University Medical College, was further expanded in April.

In Mexico, studies of the role of birds and bats in the ecology of arboviruses were extended through extensive collections of migrant and local birds and bats at Sontecomapán, Veracruz, in April and May.

Studies on samples of human blood obtained (1965) largely from indigenous personnel in Panzos, Guatemala, revealed a high prevalence of Venezuelan encephalitis virus hemagglutination inhibition antibodies and complement fixation tests indicated some infections were of recent origin. It was therefore considered to be highly desirable to extend investigations in Guatemala, and in April 1966 a joint survey of the Flores, Petén, area was arranged with the cooperation of the University of San Carlos and the Ministry of Public Health and Social Welfare of Guatemala. In the Flores and Tikal areas of Petén, sentinel hamsters were exposed and series of human blood samples were collected in cooperation with district public health officers; blood samples from domestic animals were obtained at the Flores abattoir. Only 1 hamster died during exposure and virus could not be isolated from its tissues. The human blood samples were under study at Cornell University and at the University of San Carlos in Guatemala.

The same 3-step procedure was carried out in Belize, British Honduras, but there 2 hamsters died and a viral agent was isolated from their tissues.

Laboratory studies continued at Cornell University Medical College on field materials collected and a study of viremia and antibody production in herons was initiated to complement field data.

Although no field training program was offered in Mexico, training activities continued at Cornell University with 1 fellow from Jamaica, 2 from Mexico, and 1 from the United States of America. One of the fellows who studied Venezuelan encephalitis virus infection in bats completed his training period and returned to Mexico. The other postdoctoral fellow undertook a comparative study of the relative virulences of strains of Venezuelan encephalitis virus isolated throughout the geographic range of the virus; this study included 27 strains isolated in Mexico during this research and training program. Two fellows presented papers at the Annual Meeting of the American Society of Tropical Medicine and Hygiene, held in Puerto Rico in November: one paper was on a virus previously unknown in Mexico, and the other dealt

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with the effect of lipid solvents on the infectivity of Venezuelan virus.

USPHS-NIH

AMRO-0200 (-90), Malaria Technical Advisory Services (inter-Zone)

Objective: To provide advisory services in entomology, parasitology, and transportation, and in the participation of general health services in the final phases of the malaria eradication program.

Probable duration: 1955-1972.

Assistance provided: 3 medical officers, 1 parasitologist, 1 entomologist, 1 assistant entomologist, 2 administrative officers, 3 short-term consultants, and 2 clerks; equipment and supplies; and seminar costs.

Work done: The medical officers assigned to promote the participation of national health services in the respective malaria eradication campaigns began their activities by studying particularly the countries where previously malarious areas were in the consolidation or maintenance phase. They then began preparations to organize local seminars to get malaria eradication personnel together with local health personnel, in order to discuss ways and means of transferring the responsibility to the general health services. The first seminar was held in Trujillo, Peru, in December; the 45 participants included staff from the Ministry of Public Health and Social Welfare, Social Security, medical schools, and PASB.

One of the short-term consultants presented a paper on malaria eradication to the Congress of AIDIS (see AMRO-2100).

In addition, the personnel assigned to this project provided consultant services on several aspects of malaria eradication work (see Brazil-0200 and -0201 and the -0200 projects of British Honduras, Costa Rica, Dominican Republic, Guyana, Haiti, Honduras, Nicaragua, and Peru).

PAHO/SMF, WHO/MESA

AMRO-0203 (-118), Malaria Technical Advisory Services (Zone III)

Objective: To provide technical advisory services to the Governments of the countries in Zone III and coordinate the respective malaria eradication programs; and to coordinate the research and training activities of these programs with those of the Hemisphere-wide malaria eradication program.

Probable duration: 1958-1972 or until all the countries in the Zone complete the consolidation phase of their malaria eradication programs.

Assistance provided: 1 chief Zone malaria adviser, 1 epidemiologist, 1 administrative methods officer, 1 health educator, and 1 secretary; and equipment and supplies.

Work done: The chief adviser and epidemiologist visited all the countries in the Zone in order to evaluate antimalaria work and provide advice and supervision, in an effort to minimize the effects of inadequate budgets, and also to prepare a basis for the expanded and inten-

sive 3-year attack operations scheduled for 1967. The health educator also made frequent visits to the campaigns in the Zone, giving advice on the strengthening of health education activities and their better orientation, as this phase is essential in campaigns that will rely heavily on collective treatment of large populations for lengthy periods. The administrative methods officer was engaged in assisting the countries to modernize the administrative methods within the eradication programs and to structure the national malaria eradication service within each ministry of health in the manner most conducive to flexible and efficient operations.

WHO/MESA

AMRO-0204, Malaria Technical Advisory Services (Zone IV)

Objective: To provide technical advisory services to the Governments of the countries in Zone IV and coordinate the respective malaria eradication programs; and to coordinate the research and training activities of these programs with those of the Hemisphere-wide malaria eradication program.

Probable duration: 1958-1970 or until all the countries in the Zone complete the consolidation phase of their programs.

Assistance provided: 1 malariologist (up to July).

Work done: From January to June, advice and assistance in evaluating results and formulating policy was provided to the 4 countries in the Zone, with emphasis on the program of Colombia. Program consultants were supervised.

PAHO/SMF

AMRO-0209 (-196), Insecticide Testing Team

Objective: To study the activity of new insecticides; and to develop and evaluate methods of applying larvicides for use in the malaria eradication campaign.

Probable duration: 1959-1969.

Assistance provided: 1 entomologist, 2 assistant entomologists, 1 entomological aide, 1 short-term consultant, and advisory services by Headquarters personnel; a grant to cover salaries of local auxiliary personnel; and equipment and supplies.

Work done: The team participated in the WHO scheme for evaluating new insecticides for malaria eradication, continuing the observations on OMS-33 in experimental hut trials (stage IV) and village-scale trials (stage V) that were started in 1965. These shed further light on the marked effects of low relative humidity in reducing the effectiveness of carbamate residual insecticides. Observations were carried throughout the dry season and into the rainy season of 1966. Stage V, to which studies of fumigant action were added, was continuing.

The first large scale operational field trials (Stage VI) of OMS-33 were started in April in a highly malarious portion of southeastern El Salvador. An area of 3,000

houses (13,000 inhabitants) was sprayed 3 times by the end of 1966. Observations on effectiveness and toxicity were amplified, and safe spraying practices were developed and evaluated. The fumigant effect of OMS-33 was clearly demonstrated for 5 to 6 weeks after spraying.

Another new insecticide, OMS-716, was put under experimental hut trial (stage IV), but so far it showed no advantages over OMS-33.

WHO/MESA

AMRO-0210 (-220), Malaria Eradication Epidemiology Team

Objective: To determine causes of the persistence of malaria transmission; to recommend additional eradication measures; and to develop methods for the study of the epidemiology of persistence of transmission.

Duration: 1960-1966.

Assistance provided: 1 epidemiologist and 1 entomologist; and equipment and supplies.

Work done: The method of adding an intensified case-finding and radical treatment to 3 cycles of DDT spraying per year was evaluated from September 1964 to May 1966. A very intensive epidemiological study was made of 17 localities in Mexico with persistence of transmission and all but 4 had cleared up on the attack applied. The factors in persistence of transmission in these localities were unusual breeding places, often with intensive migration from uncontrolled areas.

The general incidence among the 226,000 residents in the study area was low after 1 year of effort. There were 460 cases in the first 4 months of the program and 167 cases in the corresponding 4 months 1 year later. Among the 2,027 localities in the study area, most of the positive ones became and stayed negative. The usual incidence was 1 case per locality, often an imported case. Except for 4 localities, transmission was considered to have been halted in the area.

The method continued to be used under Mexican auspices although formal activity of project AMRO-0210 stopped in June.

WHO/MESA

AMRO-0214, Advanced Course in Malaria Epidemiology

Objective: To provide advanced training in epidemiology of malaria for malariologists, national and international, working in the malaria eradication program of the Americas.

Probable duration: 1965-1968.

Assistance provided: 3 malaria specialists from Headquarters who served as part-time instructors.

Work done: A course for international malaria advisers was conducted in collaboration with the U.S. Communicable Disease Center, in Atlanta, Georgia. The course included field trips to various sites where mosquito control operations were being carried out in southeastern

United States. Twelve engineers, all of which functioned as international advisers, attended the course, held from 29 May to 24 June.

AMRO-0217, Field Investigations of Mass Drug Treatment

Objective: To investigate methods for improving the coverage and effectiveness of mass drug-treatment programs.

Probable duration: 1966-1968.

Assistance provided: A grant to Gorgas Memorial Institute for equipment, supplies, local salaries, and travel expenses.

Work done: This is a field trial of the effectiveness of the combination of pyrimethamine and primaquine when offered in a mass drug-distribution campaign in 2-week cycles. The area selected was the Sambú River basin, in Panama's Darién Province, which has a population of 1,719. A preparatory survey made in April showed a parasite index of 16.5%; yet, during the first round of treatment, from 6 to 14 June, blood samples from 1,716 persons were examined and 17.4% were positive.

In spite of a great influx of people which raised the population of the study area to 2,210 by the 4th cycle, the malaria prevalence, as shown by mass blood survey, dropped to 2.4% during the 5th cycle and to 1.0% in the 9th cycle. The size of the population became rather stabilized since the 4th cycle, but the percentage accepting treatment dropped to 78% or less.

Although the more recent cases appear to be in the fringes of the treated area, the presence of a number of persons who have parasites after supposedly taking the suppressive treatment is a matter of concern. A few patients who were positive again after 600 mg of chloroquine continued under study. At year's end, those who received 1,500 mg of chloroquine under supervision were cured. Special studies of *Plasmodium falciparum* showed a less than curative response to the suppressive dose of pyrimethamine (50 mg) and primaquine (40 mg). Whether the strain is able to propagate remains to be seen.

PAHO/SMF

Gorgas Memorial Institute

AMRO-0300 (-60), Smallpox Eradication

Objective: To cooperate with Governments in the production of smallpox vaccine; and to advise them on the organization, conduct, and evaluation of national smallpox eradication programs.

Probable duration: 1951-

Assistance provided: 11 short-term consultants and advisory services by Headquarters personnel; and equipment and supplies.

Work done: The countries and territories notified 1,412 cases of smallpox: 21 in Argentina, 1,368 in Brazil, 8 in Colombia, 5 in Paraguay, and 10 in Peru.

The survey (planned in late 1965) to determine the needs of the American countries for the conduct of smallpox eradication campaigns and the nature and quantity

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of the international assistance required was carried out from January to April. The documentation produced with the survey data led to the approval by the PAHO Executive Committee and the Pan American Sanitary Conference of resolutions restating the urgent need to eradicate smallpox in the Americas, urging the countries to initiate or accelerate action to eradicate the disease and instructing PASB to cooperate with the countries in these efforts, coordinate the program on the continental level, and render technical and financial assistance to the extent allowed by the budget.

In anticipation of requests from interested Governments, a model working agreement was drafted for consideration by the countries. Job descriptions were also written for 6 epidemiologists and 4 statisticians who it was expected would be needed as consultants for this campaign.

Without suspending the agreement under which the Serum Institute (Copenhagen, Denmark) serves as a reference laboratory to determine the purity and potency of smallpox vaccine prepared in Latin American laboratories the Organization concluded an agreement (5 years, starting in 1967), with the University of Toronto, Canada, under which medical specialists from the Connaught Medical Research Laboratories (a division of the University of Toronto) will visit all the Central and South American laboratories engaged in the production of dried smallpox vaccine to learn about their working methods and their requirements in personnel and equipment. They will also take samples of the vaccines produced in those laboratories in order to test them; later on they will continue their testing of fresh vaccine for potency and purity and will visit the countries periodically whenever a vaccine sample does not give satisfactory results or a country requests advisory services in this field.

In view of the usefulness of foot-pump-operated jet injectors, since they can be used to administer a minimum of 3,000 vaccinations per 6-hour day and thus keep the cost per vaccination down, PASB, with the authorization of the United States Public Health Service, translated into Spanish and Portuguese 2 manuals prepared by the Communicable Disease Center of Atlanta, Georgia, for the use and repair of those injectors. One of these manuals, written for the vaccinator, explains how to operate the injector and how to make minor repairs to keep it in good working order. The other manual tells how to make major repairs on the instrument. Both are profusely illustrated and are written to be understood by the operator. (The publications will be ready for distribution in 1967. The manual is also available in a French version published by the CDC.)

Foot-pump-operated jet injectors were purchased for shipment to each Zone Office and to each country where smallpox exists and where maintenance programs are under way so that the prospective operators may familiarize themselves with the instruments as soon as they arrive.

Because of conflicting opinions on the quality of manually operated injectors and of their performance in smallpox vaccination, PASB purchased a small number to test them in the field. PASB personnel will conduct the field test.

The Organization mediated the furnishing of freeze-dried smallpox vaccine, free of charge, by countries that produce it to those which do not and which are conducting smallpox vaccination campaigns.

A study was made of how to introduce smallpox vaccination as a permanent practice in the regular vaccination work of health agencies. In addition, antivaccinia human gamma globulin was obtained from the American Red Cross for the treatment of 1 case of vaccinia necrosum in Central America.

Work was started on the preparation of a Seminar on the Administration of Immunization Campaigns in which an attempt will be made to coordinate all the immunization work to be done in each country in a single program, and to set quantitative targets to be achieved within a definite time limit and sustained through the years.

See also Brazil-0300.

PAHO/RB, WHO/OF

AMRO-0308, Courses on Virological Diagnosis of Smallpox

Objective: To organize courses on laboratory diagnosis of smallpox for all the countries of the Americas.

Probable duration: 1966-

Assistance provided: 2 short-term consultants.

Work done: Two 1-week Courses on Laboratory Diagnosis of Smallpox were conducted in São Paulo, Brazil, from 17 to 23 October, for a total of 15 students from Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru, and Venezuela. The Communicable Disease Center (USPHS), the Adolfo Lutz Institute (São Paulo, Brazil), and the Pan American Sanitary Bureau collaborated in planning, organizing, and carrying out these courses.

WHO/RB

AMRO-0400 (-110), Tuberculosis Control (inter-Zone)

Objective: To collaborate with the Governments in the planning and carrying out of tuberculosis control programs; and to stimulate technical meetings in order to foster and expand antituberculosis programs.

Probable duration: 1957-

Assistance provided: 2 short-term consultants and advisory services by Headquarters personnel; and equipment and supplies.

Work done: In keeping with the basic aim of achieving the integration of a body of doctrine that might serve as the basis for the work of the Organization and as a guide for the consultants to assist the countries in the planning of their tuberculosis activities, a guideline for tuberculosis control programs was prepared and distributed to the field personnel.

Several countries gave special attention to bacteriological diagnosis and increased the training of auxiliary personnel. Other countries were using BCG without prior tuber-

culin test, together with other immunizations, particularly against smallpox.

Basic studies were begun in Colombia to establish a verification area which will meet the conditions to serve as point of reference for future programs, as was planned for Brazil.

In view of the interest expressed by the Central American countries to achieve uniform planning within their national health programs, efforts were continued to assist them in integrating their antituberculosis activities within their respective general health services.

See also the -0400 project under Argentina, Brazil, Chile, Costa Rica, Ecuador, El Salvador, Dominican Republic, Honduras, Nicaragua, Panama, Peru, and Venezuela.

WHO/RB

AMRO-0403 (-246), Tuberculosis Control (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in the study, organization, conduct, and evaluation of tuberculosis control programs, in the training of professional and auxiliary personnel in modern techniques, and in the integration of tuberculosis control activities into the general health services.

Probable duration: 1963-1970.

Assistance provided: 1 medical officer and travel and per diem allowances for the members of a Working Party.

Work done: Activities related to the British Honduras, Costa Rica, El Salvador, Honduras, Nicaragua, and Panama programs were continued. In view of the interest of the countries of the Zone in establishing unified planning within their respective National Health Programs, advisory services were provided on the expansion of tuberculosis control activities and their integration into the general health services, utilizing experience acquired in demonstration area programs.

The interest aroused in the countries in convoking a Tuberculosis Working Party, with a view to coordinating and revising control activities in the area should be stressed. The meeting was held in Panama City, Panama, from 25 to 30 July.

The countries continued their efforts to implement the recommendations of international meetings sponsored by PAHO/WHO in 1964 with regard to some new procedures, such as BCG vaccination without prior tuberculin testing. Although El Salvador had already adopted this procedure on a broad basis, the Organization prepared a study of direct use of BCG and distributed it to the countries, in order to enable them to conduct scientific tests prior to utilization of this method on a large scale.

Several countries initiated simultaneous administration of BCG with other vaccines, principally smallpox vaccine.

See also the -0400 project of Costa Rica, El Salvador, Honduras, Nicaragua, and Panama.

PAHO/RB

AMRO-0404 (-316), Tuberculosis Control (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the study, organization, conduct, and evaluation of tuberculosis control programs, in the training of professional and auxiliary personnel in modern techniques of tuberculosis control, and in the integration of tuberculosis control activities into the general health services.

Probable duration: 1962-1970.

Assistance provided: 1 medical officer, 1 short-term consultant, and advisory services by the nurse assigned to project AMRO-3204.

Work done: Priority attention was given to the integration of tuberculosis control programs into the general health services; to implementation of the program, adhering to definitions and techniques recommended by the Organization for the diagnosis and treatment of tuberculosis cases and the evaluation of the efficiency of programs; to the development of tuberculosis control services; and to the training of personnel. Within this general context, integration varied from country to country in accordance with the existence or nonexistence of national health plans and the structure of the various health services.

In Colombia the general health services decided to carry out a tuberculosis control program in an area comprising 12 municipalities of the Departments of Cundinamarca and Tolima, utilizing the Girardot unit as the base of operations and covering a population of 174,577.

The consultant gave conferences in Colombia, Ecuador, and Peru, and participated in 3 short courses on tuberculosis. He also cooperated in the organization and presentation of a Seminar on Tuberculosis Control Problems, which was held in Huarás (see Peru-0401).

See also the -0400 projects of Bolivia, Ecuador, and Peru.

WHO/RB

AMRO-0500 (-149), Leprosy Control (inter-Zone)

Objective: To determine the prevalence and characteristics of leprosy in the Americas; and to assist the Governments in the planning, programming, and organizing of leprosy control activities and in the training of professional and auxiliary personnel.

Probable duration: 1958-

Assistance provided: 3 short-term consultants and advisory services by Headquarters and project AMRO-0508 staff; and equipment and supplies.

Work done: Improvement of leprosy control programs in aspects related to statistics, epidemiology, surveillance, evaluation, administration, and personnel training was continued.

As a result of the Course on Prevention of Deformities and Physical Rehabilitation of Leprosy Patients, with Emphasis on the Use of Nonsurgical Methods (conducted in Venezuela in 1965), 2 short-term consultants visited the physicians who had attended the course,

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for the purpose of learning about the work they were performing in their respective countries and about the problems confronting them and assisting in their solution, as well as to acquire experience in the organization and development of new courses.

A meeting of specialists was held in Washington, D.C., for the purpose of analyzing the problem of the prevention of deformities and the physical rehabilitation of leprosy patients. It was unanimously agreed that the prevention of deformities and the treatment of certain minor types of incapacities should be considered an integral part of the leprosy treatment, it being the responsibility of the physician in attendance—regardless of whether he is a specialist in leprosy or a general practitioner—to give the appropriate orders, verify their being carried out, check the results of the treatment and formulate new orders if the latter so indicate. With regard to rehabilitation from established physical disability, it was felt that this is a responsibility of the general physical rehabilitation services, to which leprosy patients should be referred.

The Organization has suggested that all leprosy control programs should carry out, simultaneously, 3 applied research programs, namely: (a) in epidemiology, in order to clarify aspects that are important for a better understanding of the disease and improved performance of surveillance activities; (b) in sociology, to determine the attitude of the population with regard to the measures recommended by the health authorities, find out the reasons for such attitudes, and decide on measures to be taken; and (c) in operational methods, for the simplification of the methods and reduction of the inherent costs, determination of per-unit cost of activities, and search for new operational procedures. Toward the end of 1966 these concepts began to be accepted, as evidenced by the fact that they were included in the new text of an agreement on a leprosy control program in Argentina.

A supply of lyophilized BCG was purchased in Japan for research purposes in Venezuela's leprosy control program.

A limited supply of jet injectors for manual use, calibrated for intradermic injections of $\frac{1}{10}$ of a cc of a liquid substance per shot, was purchased. They will be used, tentatively, in the administration of tuberculin and BCG.

Efforts were continued in the preparation of a Manual for Leprosy Control Programs, for which some of the papers requested were received.

See also Argentina-0500, Ecuador-0500, Venezuela-0500, and AMRO-0508.

PAHO/RB

AMRO-0504 (-263), Leprosy Control (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the study, organization, conduct, and evaluation of leprosy control programs, in the training of professional and auxiliary personnel in modern techniques of leprosy control, and in the integration of leprosy control activities into general health services.

Probable duration: 1960-

Assistance provided: 1 leprologist.

Work done: The consultant carried out a study of the problem of leprosy in the Department of Beni, Bolivia, and collaborated with the national authorities in the preparation of, first, work plans, and later, in the preparation of emergency plans because it had not been possible to implement the work plans. The Institute of Communicable Diseases progressed in the planning of activities for leprosy control throughout the country.

Leprosy control activities in Bolivia are limited to the work performed by the Los Negros Leprosarium, the Health Centers, and the cooperation furnished by private institutions in the Department of Beni.

The Los Negros Leprosarium was administered by Peace Corps personnel until September 1966, on which date the Ministry of Public Health assumed charge of the services. In May there were 78 lepers hospitalized in Los Negros. Also, 454 persons who were receiving ambulatory treatment were kept under surveillance. Most of the ambulatory cases are patients who were discharged by Los Negros Leprosarium, to which they return every 6 months for clinical examination. Generally speaking, patients remain in the Leprosarium for 3 months, during which time they are informed about the treatment to be followed, the prevention of incapacitation, and control of contacts.

The Peace Corps provides the Los Negros Leprosarium with the services of technical personnel which, unfortunately, have not had national counterparts; the Corps also provides supplies and financial assistance. The American Leprosy Mission, Inc., contributes financially to maintenance of the establishment.

During a visit to the Department of Beni, the Head of the Institute of Communicable Diseases of the Ministry of Public Health of Bolivia and the adviser assigned to this project observed that numerous leprosy foci are scattered throughout the entire area of the department. According to a preliminary estimate, the number of leprosy cases in this geographic area is 800. The 198 cases registered as of June 1966 were being treated by the Health Centers in the area (76 patients) and the missionaries of the Bolivian Indian Mission (122 patients). The latter institution also takes care of 84 cases which, because they are dispersed over a broad area, can only be reached by means of the light airplanes owned by the Mission. With its own resources and a small subsidy provided by the Government of Bolivia the Mission operates the Lake Victoria Leprosarium, whose 38 patients can only be reached by air.

In Peru the consultant collaborated in the development of the Health Services of Loreto (Peru-3105), in which department the prevalence of leprosy is estimated to be of the order of 7%. The problem is met, in part, by the Dermatology Dispensaries of the Health Centers of Iquitos and Pucallpa, the San Pablo Asylum (250 beds) and, occasionally, by other area health agencies. The adviser visited the Department of Loreto on 2 occasions during which he gathered first-hand information about the problem and discussed it with the local authorities, to whom he made suggestions on control of the disease, and, finally, prepared a plan for control of the disease and submitted it to the health authorities of Peru for their consideration. The Government initiated a program of BCG vaccination

without prior tuberculin tests. By the end of November, some 25,000 persons had been vaccinated.

See also the -0500 project of Colombia and Ecuador.

WHO/RB

AMRO-0506 (-305), Leprosy Control (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the study, organization, conduct, and evaluation of leprosy control programs, in the training of professional and auxiliary personnel in modern techniques of leprosy control, and in the integration of leprosy control activities into general health services.

Probable duration: 1962-

Assistance provided: 1 leprologist.

Work done: The consultant visited Uruguay for the purpose of interesting the authorities of that country in initiating an organized leprosy control program.

See also Argentina-0500 and Paraguay-0100 and -0500.

WHO/RB

AMRO-0508, Seminars on Leprosy Control

Objective: To exchange ideas and experiences on the application to leprosy control programs of the health administration methods recommended in the Seminar held in Cuernavaca, Mexico, in 1963.

Probable duration: 1966-1968.

Assistance provided: 3 short-term consultants and advisory services by Headquarters professional personnel.

Work done: Personnel of this project provided services to projects -0500 of Argentina, Ecuador, and Venezuela, in the form of advisory services and evaluation of anti-leprosy activities in those countries, which, in turn, are part of the preparation of the seminar scheduled for 1968.

WHO/RB

AMRO-0600, Yaws Eradication and Venereal Disease Control

Objective: To provide advisory services on yaws eradication and venereal disease control.

Probable duration: 1961-

Assistance provided: 1 short-term consultant and advisory services by Headquarters staff and the epidemiologists of projects AMRO-0102, -0103, and 0106; and a limited amount of equipment.

Work done: The study of venereal diseases and the organization of control programs were promoted in various countries of the Region. As a result of all the activities that have been carried out in this respect several countries expressed greater interest in the problem than in past years. In Argentina, for example, during the second half of the year, 2 courses on laboratory methods for the diagnosis of venereal diseases were conducted in the National Institute of Microbiology. Specialized personnel of the Communicable Disease Center of the United States

Public Health Service assisted in the teaching activities, and the Pan American Sanitary Bureau collaborated in the preparation of the courses and analysis of the program. A total of 15 Argentinian physicians and 1 Uruguayan attended the courses.

Representatives of the Government of Brazil and of PAHO/WHO initiated procedures with a view to having technical personnel of the Bureau cooperate with the Government in evaluating the present status of the program for yaws eradication which the Government is carrying out in the country.

In the Dominican Republic, where a situation similar to that of Haiti exists, the need to carry out a study for determining the extent and distribution of yaws in the country, its causes, and measures to eliminate the disease has been recognized, inasmuch as, because of special circumstances, the eradication program was interrupted several years ago.

PASB published a Spanish translation of the *Manual of Serologic Tests for Syphilis* (translated in 1965 from the 1964 revision), prepared by the United States Public Health Service Venereal Disease Research Laboratory. The Bureau also published and distributed the working documents, the Final Report, and other information related to the Seminar on Venereal Diseases (held in 1965).

WHO/RB

AMRO-0700 (-81), Pan American Zoonoses Center

Objective: To provide interested countries with advisory services for establishing or improving veterinary services and zoonoses control programs; to carry out research on the most prevalent zoonoses; and to train technical personnel for zoonoses control work.

Probable duration: 1956-

Assistance provided: 1 chief of laboratories, 1 chief of technical services and training, 2 zoonoses specialists, 1 virologist, 1 assistant virologist, 1 assistant scientist, 1 administrative officer, and 6 short-term consultants; and equipment and supplies.

Work done: Personnel of the Center visited Colombia and Panama to obtain information on the local situation with regard to zoonoses and to review the production of rabies vaccine in Colombia. A staff member collaborated in Peru in the planning of a control program against goat brucellosis, and a rabies consultant spent 6 months in Uruguay and 2 months in Argentina assisting authorities in the organization of control measures. Members of the Center participated in various scientific meetings held in Argentina, Guatemala, Panama, Uruguay, and Venezuela at which papers were presented and concepts of planning, execution and evaluation of zoonoses control programs were clarified.

With the purpose of increasing services to Central American countries, the Chief of Technical Services and Training of the Center visited the area in November and discussed with local authorities the design of specific projects on zoonoses control.

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As regards the research program, work on the typing of *Brucella* strains isolated from human patients and animals in various Latin American countries was continuing and strains from Brazil, Chile, Mexico, and Peru were examined. A survey to investigate the prevalence of *Brucella* infection in dairy herds in the Azul (Argentina) area, using the ring test, was conducted and out of 60 pooled herd samples, 34 (56.8%) gave positive reactions.

Regarding hydatidosis, since 1964, 13 different controlled experiments have been carried out at the Center with the antihelminthic compound 62-415 (Bunamidine) to treat *Echinococcus granulosus* in artificially infected dogs. The results of these trials, conducted with a single dose (except in 1 case) at levels ranging between 100-250 mg/kg of body weight revealed that the drug is a highly effective teniacide but may be toxic. In 1966 a laboratory-controlled study and a large field trial of the drug at lower doses were carried out. In addition, 2 laboratory investigations were undertaken on the development of protoscolices of *E. granulosus* in laboratory animals and tissue culture.

In leptospirosis, studies to determine the rate of infection in Argentine cattle with serotypes *Leptospira pomona* and *Leptospira sejroe*, employing the microscopic agglutination test, were proceeding as planned.

The study of antirabies antibody levels produced in vaccinated cattle were continued. Cattle immunized with the attenuated live-virus tissue culture vaccine and with the suckling mouse brain (SMB) U.V. inactivated vaccine were periodically studied throughout the year. Animals vaccinated with the first vaccine demonstrated higher antibody titers than those vaccinated with the SMB vaccine.

Seventeen different strains of rabies viruses from several countries of South America were being studied at the Center to assess their virulence and immunogenicity, with the purpose of selecting the best strains for vaccine and serum production, as well as for challenge purposes. To help the improvement of diagnostic procedures, the Center prepared antirabies immune globulins conjugated with fluorescein isothiocyanate. This reagent is available for distribution and has already been provided to official laboratories in Brazil and Uruguay.

Proceeding with investigations undertaken to determine the natural occurrence of zoonoses in different species of wildlife, a study was carried out on "vizcachas" (*Lagotomus maximus*) captured in the Azul area. Five hundred and fifty vizcachas were examined serologically and bacteriologically for brucellosis, with negative results. Kidney and urine samples from 335 vizcachas were cultured for *Leptospira*, also with negative results, but some reactors were found with serological techniques.

Long-term training on special zoonoses studies was provided to 3 professionals from Argentina, Brazil, and Paraguay. Personnel from several Argentine laboratories visited the Center to receive orientation on laboratory methods used in the production and control of brucellosis strain 19 vaccine. A Brazilian physician also received training on brucellosis and hydatidosis, with emphasis placed on diagnosis and field practices. Instruction was given to 1 professional from Peru on the control of *Brucella* vaccines and antigens and on the production of antirabies vaccine. Two professionals from Uruguay were also trained for a short period: one on hydatidosis control and the

other on the fluorescent antibody technique for the diagnosis of rabies. One professional from Venezuela received training on the laboratory control of rabies vaccines.

The Center prepared and published a manual containing the material presented at a theoretical and practical course on the laboratory and epidemiological aspects of rabies held in May 1965. Technical Notes No. 5, on the Bacteriological Control of Canned and Frozen Meats, and No. 6, on the Prevention of Rabies in Man, were also prepared and distributed. The publication of the Spanish quarterly *Zoonoses* was continued. Bibliographical lists on virus transmission, mycoses, toxoplasmosis, bat-transmitted rabies, isolation and typing of mycobacteria, anthrax, and leptospirosis were prepared at the request of individuals and institutions from Argentina, Colombia, England, and Guatemala. Seven scientific papers were published.

The Center received 35,158 specimens for diagnosis, 914 whole animals for diagnosis and taxonomic classification, and 158 biological products for study and control.

See also Argentina-0700, Brazil-0701, Paraguay-0700, Peru-0700, Uruguay-0701, and AMRO-0703.

**PAHO/RB, PAHO/G: USPHS-CDC,
PAHO/G: Burroughs-Wellcome Foundation,
WHO/UN-TA Government of Argentina**

AMRO-0701 (-312), Rabies Control (Zone I)

Objective: To cooperate with the health services of the countries of Zone I in the development of rabies control activities, including the training of personnel and the establishment of diagnosis services.

Probable duration: 1965-1968.

Assistance provided: 2 short-term consultants; and a limited amount of equipment and supplies.

Work done: Cooperation was provided to the Government of Grenada in the continuation and evaluation of the program for the control of rabies in mongooses, and the mongoose population was reduced by 50% in the principal areas of the island. The personnel which had been trained in 1965 in methods for poisoning and placing traps placed 175,380 pieces of bait and over 300 traps in an area of 9,340 acres. In poisoning activities, zinc phosphate was replaced by sodium monofluoroacetate (1080), and inoculation by means of the firing of tranquilizers was utilized in capturing specimens and for the control of animal vectors. The Government established a special budget for extending the mongoose control program throughout the island, in order to reduce their numbers to less than 10%. Arrangements were concluded with the Virus Institute of Trinidad and Tobago for an epidemiological study of the incidence of rabies in mongooses on the island. In addition, over 9,000 dogs were vaccinated and registered.

At the request of the Government of Venezuela and under the auspices of the Ministries of Health and Social Welfare and of Agriculture, and with the cooperation of the Communicable Disease Center of the United States Public Health Service and the Pan American Zoonoses Center, 1 course on fluorescent antibody techniques for the diagnosis of rabies was conducted in the Veterinary Research Center of Maracay, from 1 to 15 June. This

course was attended by 16 professionals from the above-mentioned Ministries and from several university centers of the country.

WHO/RB

AMRO-0703 (-188), Veterinary Public Health (Zone III)

Objective: To collaborate with the Governments of the Zone III countries in the development of veterinary public health services and activities, particularly with regard to the study and control of zoonoses and the application of food protection measures; to promote the teaching of veterinary public health; and to collaborate in the evaluation of programs of veterinary public health and other programs whose object is the satisfactory utilization of such services.

Probable duration: 1957-

Assistance provided: 1 adviser in veterinary public health and advisory services by Headquarters and Pan American Zoonoses Center personnel; a limited amount of equipment and supplies; and defrayal of the costs of the Second Seminar on Veterinary Public Health for Central America and Panama (AMRO-0711).

Work done: Studies were carried out which revealed that rabies, brucellosis, cysticercosis, and tuberculosis constitute the principal zoonoses in the Central American countries. These 4 highly important diseases are found in all the countries of the area, the degree of their prevalence and importance varying from one country to the other. PASB collaborated with the animal health and sanitation services of Central America in their efforts to control these diseases, providing technical assistance, antigens and other biological products for diagnoses, and supplied various services, laboratories and educational centers with items of equipment. It also assisted in the standardization of diagnostic tests and promoted improvement of the systems for notification of cases of disease in animals.

Despite the rabies control measures taken, the incidence of cases was not reduced in accordance with expectation and, as of August, 160 cases in animals and 10 cases among humans had been registered in the 6 countries of the area.

The countries intensified their diagnosis of brucellosis and carried out 96,710 tests which showed the following percentages of incidence: Costa Rica, 4.08%; El Salvador, 5.01%; Guatemala, 2.08%; Honduras, 0.09%; and Panama, 1.18%.

In the tuberculosis programs, 70,775 tuberculin tests showed the following percentages of incidence: Costa Rica, 0.03%; El Salvador, 1.08%; Guatemala, 0.84%; Honduras, 2.07%; and Panama, 0.01%. The low incidence found in Costa Rica and Panama attests the effectual eradication and control programs initiated in those countries 5 years ago.

Collaboration was provided to INCAP in the teaching of food technology and hygiene, and the consultant participated in the teaching of the regular courses in zoonoses and public health taught in the School of Veterinary Medicine of the University of San Carlos in Guatemala.

See also projects AMRO-0711 and -4703.

WHO/RB

AMRO-0708 (-61), Rabies Control

Objective: To provide advisory services and supplies for the control of epidemic outbreaks of rabies.

Probable duration: 1954-

Assistance provided: Advisory services by Headquarters personnel.

Work done: Assistance was given to the Governments of the countries in this Hemisphere—especially to Argentina, Mexico, Peru, Uruguay, and Venezuela, whose rabies control programs were just starting. Besides providing technical assistance and facilitating the acquisition of vaccines, poison, and other supplies, biological material for the diagnosis of rabies and for the production and control of antirabies vaccine was furnished through the Pan American Zoonoses Center.

In Uruguay and Venezuela the collaboration included assistance in carrying out courses in the techniques of diagnosing rabies, for the personnel of the animal health and sanitation services.

See also the -0700 projects of the above-mentioned countries.

AMRO-0710, Rabies (Mexico-United States of America Border)

Objective: To collaborate with the Governments of Mexico and the United States of America in the gradual reduction of canine rabies in the border cities of both countries.

Probable duration: 1966-1971.

Assistance provided: 1 public health veterinarian and advisory services by Headquarters personnel; equipment, supplies and local costs.

Work done: Collaboration was provided to the Government of Mexico in the preparation of a plan for the control of rabies in border cities and, to that end, a specific agreement was signed and put into effect in May. The program was initiated in August in the cities of Ensenada, Mexicali, Nogales, San Luis Río Colorado, and Tijuana. The Ministry of Health and Welfare of Mexico, acting through personnel of the epidemiology and health education divisions, the coordinated health services and personnel of the health centers of the aforementioned cities, and with the cooperation of the adviser, carried out an intensive educational campaign among the population concerned, particularly schoolchildren, during which 29,711 dogs were vaccinated. Simultaneously, a program for control of stray animals was initiated, for which PASB supplied vehicles, kennels, and materials for the construction of quarantine stations for the health services of the 5 cities. The control units thus organized performed very effective work, capturing and training 591 dogs and placing 599 other under observation. Since the start of the program, of 30 brains which were examined in laboratories, 21 cases of rabies were established throughout the area.

In order to test the efficacy of vaccination in those 5 cities thorough surveys of their canine population were initiated and completed in 2 of them—Ensenada and Tijuana. On the basis of the information obtained, evaluation groups were established for the purpose of investigating the percentage of total coverage provided by the vaccination units.

PAHO/RB, PAHO/OF

USPHS-Bureau
of State Services

VIII. PROJECT ACTIVITIES

AMRO-0711, Veterinary Public Health Seminars (Zone III)

Objective: To conduct the Second Seminar on Veterinary Public Health for Central America and Panama, in order to gather together the representatives of the veterinary public health and animal sanitation services of those countries for the purpose of discussing the problems related to the most important zoonoses of the area.

Probable duration: 1966-

Assistance provided: Advisory services by Headquarters personnel, by the public health veterinarian assigned to project AMRO-0703 and by staff of the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center.

Work done: With the collaboration of the Government of Guatemala and under the auspices of the Organization, the Second Seminar on Veterinary Public Health for Central America and Panama was held in Guatemala City from 20 to 23 November. The participants were 13 representatives from both the public health and animal sanitation sectors of those countries. PASB officials, the Regional Veterinarian of FAO, and 1 representative of the United States Air Force veterinary services in the Panama Canal Zone also took part in the deliberations. After the representatives submitted reports on the incidence of rabies, brucellosis, animal tuberculosis, and cysticercosis in their respective countries, all the attendants discussed the various aspects of these 4 zoonoses which are the most important ones of the area. Of the 5 plenary sessions held, 1 each was dedicated to the 4 above-mentioned topics and the final plenary session dealt with the preparation of resolutions and recommendations. The Final Report was transmitted to the authorities of the respective Governments and to organization and institutions that are active in the field of zoonoses.

AMRO-0800 (-77), Pan American Foot-and-Mouth Disease Center

Objective: To make available to interested countries advisory services for the control of foot-and-mouth disease, for laboratory diagnosis of the disease, and for the training of professional and auxiliary personnel; and to carry on research that will eventually result in the preparation of a modified live-virus vaccine for countries in need of it.

Probable duration: 1951-

Assistance provided: 3 short-term consultants, technical personnel assigned to the countries in Zones III and IV and some personnel of the Center; assistance in training, research, information, and publications activities, as well as other services provided by the Center; equipment and supplies, including biological reagents for diagnosis and research purposes; and the following fellowships:

Awards	Country of origin	Field of study	Place of study	Months
1	Brazil	Foot-and-mouth disease	Brazil	1
2	Brazil	Ditto	Ditto	½
1	Brazil	Ditto	Ditto	2
1	Colombia	Ditto	Brazil, Venezuela	7
2	Argentina	Ditto (course)	Venezuela	½
1	Bolivia	Ditto	Ditto	½

Awards	Country of origin	Field of study	Place of study	Months
2	Brazil	Ditto	Ditto	½
1	Chile	Ditto	Ditto	½
2	Colombia	Ditto	Ditto	½
2	Ecuador	Ditto	Ditto	½
1	Paraguay	Ditto	Ditto	½
1	Peru	Ditto	Ditto	½
2	Uruguay	Ditto	Ditto	½

Work done: The Center continued to implement its program of diagnosis, research, advisory services, and training activities.

Diagnostic activities included identification of 480 samples—from Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, France, Germany, Guatemala, Honduras, Nicaragua, Panama, Peru, Uruguay, and Venezuela—by means of complement fixation and serum neutralization or serum protection tests, in which 172 cases of type O virus, 115 of type A, and 70 of type C were identified; 67 samples were positive for vesicular stomatitis: 22 for the New Jersey type and 45 for the Indiana type. The presence of the Indiana subtype 2 in 43 blood serum samples of horses and mules was verified for the first time in Brazil. Investigation of the behavior of the fixing antigen in complement fixation tests of modified live foot-and-mouth disease virus in chick embryos was continued, and it was demonstrated that it can only be typed with antigens prepared from muscular tissue.

The research program continued to focus on the study of modified live-virus vaccines. The work included studies of the persistence of the virus in cattle and of immunity in unweaned calves, the latter conferred by a trivalent vaccine; a study of immunity conferred on unweaned calves by an avianized vaccine prepared from the A Cruzeiro strain which originated in the Center; and field tests, in the State of Minas Gerais, on immunization of cattle by a bivalent vaccine.

The Center prepared a guide for the planning of foot-and-mouth disease control projects and a document on criteria for analyzing and evaluating applications for loans for foot-and-mouth disease programs. The aforementioned documents were approved by the Working Party on Foot-and-Mouth Disease convoked by the Pan American Sanitary Bureau in August. The Working Party consisted, in addition to specialists of the Bureau, of representatives of the Organization of American States, international credit agencies and several technical organizations of the United States of America. Foot-and-mouth disease programs continued to be strengthened throughout the Hemisphere, and Chile and Paraguay submitted applications to the Inter-American Development Bank for loans for the purpose of financing their respective national campaigns.

The XXII Training Course of the Center was conducted in September, in Maracay, in cooperation with the Veterinary Research Center of the Ministry of Agriculture of Venezuela. The course dealt with modern concepts on modified live-virus vaccines, particularly with regard to the use of such vaccines in foot-and-mouth disease programs. Of the 17 veterinary doctors who attended the course—all of whom were on the respective staffs of vaccine production and control laboratories of South American countries—14 had been awarded fellowships by the Center.

AID, Government of
PAHO/OF, OAS-PTC Brazil, OIRSA

AMRO-0900, Plague Control

Objective: To cooperate with Governments in antiplague work and epidemiological studies in the plague endemic areas of several countries of the Americas.

Probable duration: 1966-

Assistance provided: Advisory services by Headquarters staff.

Work done: One of the plague areas in northeastern Brazil was visited in order to make a preliminary evaluation of the work carried out so far in the plague research project of Brazil.

AMRO-0901 (-155), Schistosomiasis Control

Objective: To assist countries to appraise their schistosomiasis problem, plan and develop control programs, and plan research projects.

Probable duration: 1960-

Assistance provided: Advisory services by Headquarters professional personnel.

Work done: Assistance was given to the Governments of Brazil and the United States of America in their negotiations involving a plan to use a specially trained group of about 30 Peace Corps volunteers in Brazil's nationwide program for the control of schistosomiasis. The volunteers would work with the national teams charged with survey, control, or evaluation responsibilities. The agreement was signed and arrangements were made to begin training the volunteers.

The manuscript for A Guide for Identification of the Intermediate Snail Hosts of Schistosomiasis in the Americas, which had been prepared by a group of consultants, was edited and made ready for publication.

PAHO/RB**AMRO-0902 (-275), Chagas' Disease**

Objective: To assist the Governments in studies to ascertain the epidemiological characteristics of Chagas' disease and its prevalence, and in applying practical measures for its control.

Probable duration: 1960-

Assistance provided: 2 short-term consultants and advisory services by 10 experts for a 3-day meeting.

Work done: Special efforts were continued to stimulate research and control studies on Chagas' disease, in recognition of the fact that its prevalence and little understood characteristics represent a major health problem of the Americas which requires emphasizing.

Production of diagnostic complement-fixation antigen for free distribution was subsidized in Chile a few years ago and the antigen was being used widely in the Americas.

Since diagnosis of the disease in its chronic phase depends heavily upon serologic techniques, efforts were made to improve the reliability of the test. In order to achieve rapid progress in improvement of the complement fixation and other serologic tests, a meeting of 10 experts from 6 countries was convened in San Juan, Puerto Rico, from 6 to 8 November, to discuss standardization and improvement of both the test procedures and the antigens. The group recommended

a standard CF technique and proposed a scheme for evaluation of antigens for the CF and other tests.

The Chagas' Disease Chemotherapy Research Group met in Brazil on 27 July and 1 August to review its activities and to discuss current research.

See also Uruguay-0900.

PAHO/RB**AMRO-2100 (-39), Environmental Sanitation**

Objective: To assist Governments in their environmental sanitation programs; and to hold meetings of the Advisory Committee on Environmental Sanitation in order to evaluate sanitation work and plan future activities accordingly.

Probable duration: 1958-

Assistance provided: 2 short-term consultants and advisory services by personnel of Headquarters, Zone Offices, project AMRO-2100, and country projects; and a limited amount of supplies.

Work done: The University of the West Indies was assisted in its preliminary arrangements to hold a course for the training of sanitary engineers and auxiliary personnel in the countries and territories of the Caribbean area.

The X Congress of the Inter-American Association of Sanitary Engineering was held from 4 to 10 December in San Salvador, El Salvador. More than 450 engineers participated.

See also Brazil-2100.

PAHO/RB**AMRO-2101 (-204), Sanitary Engineering (Zone I)**

Objective: To collaborate with the countries and territories of Zone I in improving the organization of the environmental sanitation services of the ministries of health; to give technical advice to the agencies responsible for water supply and sewerage services, rural housing programs, refuse collection and disposal, air and water pollution control, and industrial hygiene; and to collaborate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: The work of supervising the environmental sanitation and potable water supply programs going forward in the countries of the Zone was continued. A summary was prepared of the current water supply situation in the 8 east Caribbean islands, which later was used at the External Aid Office of the Canadian Government to negotiate the financing of feasibility and engineering studies in Jamaica and other English-speaking territories of the area.

See also Venezuela-2200, -2201 and -2400.

PAHO/RB**AMRO-2102 (-205), Sanitary Engineering (Zone II)**

Objective: To collaborate with the Governments of the countries of Zone II in improving the organization of the en-

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vironmental sanitation services of the ministries of health; to advise the agencies responsible for water supply and sewerage services; and to collaborate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: Participation in and supervision of activities in progress on the level of the countries in the Zone continued. In the field of education and training in sanitary engineering, 6 courses and seminars were held in Mexico and attended by a total of 316 professional health workers. Assistance was given in the preparations toward the organization of the X Congress of the Inter-American Association of Sanitary Engineering.

See also Dominican Republic-2200, Haiti-2200, Mexico-2101, -2200 and -6400, and AMRO-2100.

PAHO/RB, WHO/RB

AMRO-2103 (-206), Sanitary Engineering (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in improving the organization of the environmental sanitation services of the ministries of health; to advise the agencies responsible for water supply and sewerage services; and to collaborate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: British Honduras, Guatemala, Honduras, and Panama introduced in the sanitation sections of their ministries of health activities relating to industrial hygiene and protection against ionizing radiation.

The Government of Honduras prepared, with technical assistance from the PASB, a request to the United Nations Development Program for an over-all sanitation project at Puerto Cortez.

In Nicaragua the National University began the centralization of water and sewage laboratories with technical guidance from PASB.

In the matter of training, 11 short courses were conducted in universities of every country of the Zone. In Guatemala in addition, assistance was continued to the National University of San Carlos in the development of the first graduate course in sanitary engineering.

See also the -2200 projects of Costa Rica, El Salvador, and Honduras.

PAHO/RB

AMRO-2104 (-207), Sanitary Engineering (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in improving the organization of the environmental sanitation services of the ministries of health; to advise the agencies responsible for water supply and sewerage services; and to collaborate with universities and

other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: Coordination of sanitary engineering programs in the countries of the Zone was continued. To this end, talks were held with the national authorities and the personnel concerned on technical, coordination, and working aspects and the planning of future activities. One problem that merits special attention refers to shortcomings in programs for quality control of water supplied to urban populations, where routines could be set up for determining its potability.

See also projects Peru-6400 and AMRO-6400.

PAHO/RB

AMRO-2106 (-209), Sanitary Engineering (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in improving the organization of the environmental sanitation services of the ministries of health; to advise the agencies responsible for water supply and sewerage services; and to collaborate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial personnel.

Work done: Assistance was given in the development of the general environmental sanitation programs and to the Ministries of Health of Argentina and Uruguay in the addition to their structures of units for protection against ionizing radiation. In the latter connection, aid was given in the preparation of the corresponding legislation, in the study of the office and laboratory premises, and in the selection of the personnel to be trained for the proposed units.

See also projects Argentina-2200 and -6400, Chile-2200 and -6400, Paraguay-2200, and Uruguay-2200 and -6400.

PAHO/RB

AMRO-2107 (-95), Environmental Sanitation (Caribbean Area)

Objective: To advise on the organization, development, and strengthening of environmental health units within the ministries of health; to advise the agencies responsible for water supply and sewerage services; to advise on programs of air and water pollution control and industrial hygiene; to assist in the education and training of personnel; and to collaborate in other environmental sanitation activities through the investigation and evaluation of existing conditions and by providing technical advice during the development of extensive sanitation programs in the countries and territories of the Caribbean area.

Probable duration: 1959-

Assistance provided: 2 sanitary engineers, 1 short-term consultant, and advisory services by Zone I Office personnel.

Work done: Late in the year an evaluation was initiated

of the existing conditions and programs in Antigua, Barbados, Dominica, Grenada, Guyana, St. Kitts-Nevis-Anguilla, St. Lucia, St. Vincent, and Trinidad and Tobago, all of which completed their respective latrine manufacture and installation program.

The implementation of the structure and staffing of the Environmental Health Division within the Ministry of Health of Trinidad and Tobago was approved by the Government in April and recruitment of staff was in progress.

WHO/UN-TA

UNICEF

AMRO-2109 (-234), Sewage Disposal and Water Pollution Control

Objective: To advise the Governments in the planning of programs for the construction of sewerage systems and sewage treatment plants and in the solution of specific problems regarding the pollution of watercourses.

Probable duration: 1962-

Assistance provided: 2 short-term consultants and advisory services by professional personnel of Headquarters and Zone Offices.

Work done: Argentina, Brazil, Chile, Guatemala, Mexico, Peru, and Venezuela were visited for the purpose of considering possible locations for a research center for water pollution.

The plans for the construction of the sewerage and sewage disposal system for the city of Pôrto Alegre, Brazil, were reviewed, and recommendations were made for diminishing the pollution of neighboring watercourses. Advisory services were rendered to the Ministry of Health of Jamaica on the problem of sea water and beach pollution in the Montego Bay area by the discharge from a new collector sewer. Talks were held with the manager of the Lima Sanitation Corporation, of Peru, on possible collaboration by the Organization in solving the problem posed by the discharge of industrial liquid wastes into the household sewer system of that city. In Uruguay cooperation was continued with the Montevideo municipal authorities in solving the problem of pollution of the beaches of that capital by discharges from its sewer system.

PAHO/RB

AMRO-2110 (-236), Refuse and Garbage Disposal

Objective: To advise Governments on appropriate methods of garbage collection and waste disposal and on the organization and administration of the pertinent municipal services.

Probable duration: 1961-

Assistance provided: 1 short-term consultant and advisory services by professional personnel of Zone Office and projects.

Work done: In connection with 2 short courses on the disposal of solid wastes (garbage) in Buenos Aires, Argentina, and Santiago, Chile, PASB provided advisory services to several municipalities in the solution of existing problems in the operation of this public service. The Municipal Gov-

ernment of Buenos Aires requested advisory services for studies for the construction of 2 incinerators and, as a result, work was started on the drafting of a tripartite agreement, under the terms of which the School of Sanitary Engineering of the University of Buenos Aires would be entrusted with the corresponding studies. A visit was also paid to the city of Lima, Peru, where there is also interest in a scientific study of the problem of garbage disposal. Cooperation in the solution of this problem in Caracas, Venezuela, and in San Juan, Argentina, was continued.

WHO/RB

AMRO-2200 (-187), Water Supplies

Objective: To advise interested countries on the planning, financing, and carrying out of national water supply programs and on the organization and administration of central and local water supply and sewerage authorities.

Probable duration: 1959-

Assistance provided: 2 water supply specialists, 1 administration specialist, 2 temporary advisers (participants in AMRO-2214), 3 short-term consultants, and advisory services by Headquarters, Zone Offices, and country-projects personnel; and equipment and supplies.

Work done: Technical assistance was provided to practically all the countries in the preparation and submittal of requests for financing new water supply systems or for the expansion of existing systems. In connection with the organization and administration of national water supply authorities assistance was given to Brazil, El Salvador, Honduras, Nicaragua, Trinidad and Tobago, Uruguay, and Venezuela.

According to the data collected by the end of 1966, in the first 6 years of the Alliance for Progress decade more than US\$1 billion were committed for water supplies in Latin America, benefiting some 50 million persons.

See also the -2200 projects under the countries and AMRO-2214.

PAHO/SFHP, PAHO/CWSF

IDB, USPHS

AMRO-2203, Water Supply (Zone III)

Objective: To stimulate the potential of rural communities through community development techniques and to induce them to cooperate in the construction, operation, and maintenance of locally built water supplies.

Probable duration: 1964-

Assistance provided: 1 sanitary engineer, 1 health educator, and 1 specialist in administrative methods, 1 well-drilling expert, and 1 secretary; and a limited quantity of supplies.

Work done: The water supply programs of the countries in the Zone continued to make satisfactory progress. On this progress, see the summaries of salient activities in the respective -2200 projects of British Honduras, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

PAHO/CWSF

Community Development Foundation (U.S.A.)

AMRO-2208 (-50), Water Fluoridation

Objective: To furnish advisory services on methods of water fluoridation for the prevention of dental caries.

Probable duration: 1961-

Assistance provided: 2 short-term consultants and advisory services by professional personnel of Headquarters and Zone Offices.

Work done: Efforts to enlist the Kellogg Foundation to collaborate with PASB in a program to train sanitary engineers in the techniques and designing of methods of water fluoridation, as well as to involve in the program the agencies and authorities in charge of the water supply programs in the countries of the Region, were successfully concluded. The approved program will consist chiefly of 3 types of activities: (a) the training of engineers from the countries and PASB in 23 courses to be given over the next 4 years; (b) the preparation of engineering manuals on water fluoridation; and (c) studies on the procurement, purchasing, and storage of the fluorides to be used in the countries.

Arrangements were completed with the United States Public Health Service to conduct the first course on fluoridation techniques at the Robert A. Taft Sanitary Engineering Center in Cincinnati, Ohio.

See also the 2200 projects of Colombia, Guatemala, and Mexico.

PAHO/RB**AMRO-2212 (-377), Rural Water Supplies**

Objective: To assist the countries to meet the goal for the provision of rural water supplies set by the Charter of Punta del Este, by furnishing the countries with advice on: (a) the planning, financing, and carrying out of national plans for rural water supply programs, emphasizing community organization and participation and the establishment of national revolving funds; and (b) the development of the administrative structure needed for carrying out accelerated programs to meet the growing needs of people in the rural areas.

Duration: 1964-1966, when it was integrated with AMRO-2200 (see above).

AMRO-2213, Studies and Investigation of Water Resources

Objective: To collaborate with the United Nations Economic Commission for Latin America in a study of Latin America's water resources, particularly with a view to the provision of additional water supplies.

Probable duration: 1965-

Assistance provided: 1 sanitary engineer and advisory services by professional personnel of Zone Offices and of country projects.

Work done: The reports on water supplies, sewerage, and water pollution of the missions to Uruguay and the Dominican Republic were completed.

Many meetings were held with ECLA on a variety of sub-

jects relating to the water resources of the countries in the Region.

WHO/UN-TA**ECLA****AMRO-2214, Symposium on Administration of Water Supply Services**

Objective: To review and update the knowledge of the technical and administrative managers of water supply and sewerage services.

Place and duration: San Salvador, El Salvador; 28 November to 3 December 1966.

Assistance provided: 7 short-term consultants as lecturers, travel and per diem allowances for 35 participants, 3 secretaries, and advisory services by professional personnel from Headquarters, Zone III Office, and projects in El Salvador; and simultaneous interpretation equipment, 2 electronic technicians, and 2 interpreters.

Work done: The subjects covered were: organization, administration, programming, personnel, planning, procurement and supplies, billing, budgets, and community participation. The symposium was attended by 104 persons from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela, and the West Indies, and also by representatives of the IDB, IBRD, and USAID.

WHO/RB**AMRO-2300 (-88), *Aedes aegypti* Eradication**

Objective: To stimulate, coordinate, and evaluate *A. aegypti* eradication programs in the Americas.

Probable duration: 1954-

Assistance provided: 1 medical officer, 1 entomologist, 1 sanitation inspector, and 1 short-term consultant; and equipment and supplies.

Work done: Evaluations were made and guidance given in the campaigns in Barbados, Curaçao, and El Salvador; the surveillance services in Guatemala, Honduras, and the Panama Canal Zone were reviewed; and plans were drawn for the organization of surveillance in Costa Rica, Nicaragua, and Panama.

Studies at the *A. aegypti* Laboratory of Kingston, Jamaica, in progress with the cooperation of the Government of Jamaica and the University of the West Indies toward finding a solution of the problem of the resistance of the vector to chlorinated insecticides, entered a new phase. In earlier years the laboratory had studied the geographic distribution of *A. aegypti* resistance in the Caribbean area and in northern South America and the susceptibility of strains from these areas to new products that might replace the chlorinated insecticides in the eradication of this mosquito, and had evaluated the persistence of the residual action of the new compounds in the deposits most commonly found to be breeding grounds of *A. aegypti*. In July the laboratory began the field testing of the most promising compounds to determine their effectiveness under natural conditions, and the best

formula, concentration, and mode of application for each. By the end of the year, 2 of the new insecticides—fenthion and Abate—had been applied by different methods and in different formulas and concentrations in 6 Jamaican localities with high infestation of *A. aegypti* resistant to DDT and dieldrin. The early results of this work confirmed the effectiveness of these compounds observed in the laboratory against mosquito strains resistant to chlorinated insecticides.

See also the -2300 projects of Colombia, Cuba, Guyana, Surinam, and Venezuela.

PAHO/RB

AMRO-2301 (-8), *Aedes aegypti* Eradication (Caribbean Area)

Objective: To advise Jamaica, Trinidad and Tobago, and the British, French, and Netherlands territories in the Caribbean on *A. aegypti* eradication.

Probable duration: 1950-

Assistance provided: 3 sanitation inspectors, 1 short-term consultant, and advisory services by the medical officer assigned to project AMRO-2300; and equipment and supplies.

Work done: Technical guidance and supervision was given to the -2300 projects of Guyana and Surinam, and cooperation with the Governments of the other territories covered by this project in the Caribbean area was continued.

PAHO/RB, WHO/UN-TA

AMRO-2303, *Aedes aegypti* Eradication (Zone III)

Objective: To advise the Central American countries and Panama on *A. aegypti* eradication and on surveillance against reinfestation.

Probable duration: 1966-

Assistance provided: 1 sanitation inspector and advisory services by the medical officer assigned to project AMRO-2300.

Work done: In El Salvador the Government was assisted in the organization, orientation, and supervision of the campaign resumed in the country upon its reinfestation by *A. aegypti*. Cooperation was also given in a study carried out by the Government with the help of the United States Public Health Service to determine the extent of that reinfestation. The results of this study showed that the mosquito had reinvaded not only San Salvador and its environs, which was already known, but many other parts of the country as well, and that the campaign would have to be considerably expanded to again eradicate the vector.

The Governments of Guatemala and Honduras were assisted in a revamping of their surveillance services against reinfestation and cooperation was given in the preparation of plans for the organization of that service in Costa Rica, Nicaragua, and Panama. The surveillance against reinfestation of the Panama Canal Zone was reviewed together with the local authorities.

PAHO/RB

AMRO-2400 (-62), Public Health Aspects of Housing and Urbanization

Objective: To encourage health authorities to take part in housing and urbanization programs, particularly those which use self-help and mutual aid; and to advise the countries regarding the establishment of health standards for housing and urbanization and the adoption of measures to facilitate the prompt and proper execution of such programs.

Probable duration: 1962-

Assistance provided: 2 short-term consultants and 1 secretary; advisory services by Headquarters personnel, engineers assigned to the Zone Offices and the architect assigned to project Venezuela-2400; and equipment and supplies.

Work done: At the request of the Organization of American States, Argentina and Chile were provided with advisory services in community planning and rural housing. In El Salvador and Guatemala, discussions were held with the appropriate authorities regarding possible activities in the field of rural housing. Furthermore, continued assistance was given in the preparation of a request, which will be submitted to the United Nations Development Program and the Inter-American Development Bank, for a pilot project for a local experimental neighborhood unit located in Lima, Peru.

Assistance was again given to the housing and urbanization programs that the Economic Commission for Latin America is implementing. At the request of the Organization of American States, 1 sanitary engineer was assigned to cooperate, on a full-time basis, with the Inter-American Housing Center, which is located in Bogotá, Colombia, in the educational and research programs that the Center normally carries out.

The Inter-Institutional Committee, which consists of representatives of the Organization of American States, the Inter-American Development Bank, the United Nations Economic Commission for Latin America, the United States Agency for International Development and the Pan American Sanitary Bureau, prepared a pilot project on housing costs which will be carried out in Central America during 1967, and in which all the agencies on the Committee will participate.

The Pan American Sanitary Bureau was represented at international meetings on housing, planning and urbanization which were held in Geneva (Switzerland), Washington, D.C., and Pittsburgh, Pennsylvania (U.S.A.). It also participated in the organization and conduct of the Seminar on Urban Planning and Environmental Sanitation which the United States of America and Mexico carried out in the latter country.

Assistance was also given in the organization and conduct of the courses in housing and environmental sanitation at the University of Buenos Aires, Argentina, and in housing programs in Santiago, Chile.

See also Venezuela-2400.

PAHO/RB

ECLA

AMRO-3100 (-281), Planning

Objective: To assist the Governments in the formulation of national health plans and the training of planners.

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Probable duration: 1961-

Assistance provided: 5 short-term consultants; and equipment and supplies.

Work done: The fourth international training course for health planners was held at Johns Hopkins University, Baltimore, Maryland, in April-June, with financial assistance from AID. In addition to 3 WHO and 1 PAHO staff members, 29 other students from 13 countries also took the course.

The fifth international course for the training of national health planners was held at the Latin American Institute for Economic and Social Planning in Santiago, Chile, from 12 September to 16 December, for 35 professional health workers from 13 countries of the Americas (total trained: 160 planners from 20 countries). This course did more than give instruction in national health planning; it acted as the technical focal point for the analysis of recent advances in planning methodology with a view to incorporating new approaches for general application.

Because the need for a permanent Center for National Health Planning is acutely felt, the PASB assisted the Institute in the preparation of a request to the United Nations Development Program for assistance in establishing such a Center.

Within this project, 2 short-term consultants assisted the Organization in exploring the macroanalysis requirements of health planning. On behalf of the Organization they also cooperated with the Latin American Institute for Economic and Social Planning, the Tripartite Mission for Central America, the Inter-American Development Bank, the Inter-American Committee on the Alliance for Progress, the Pan American Union, and the planning organizations in various countries.

PAHO/RB

AMRO-3101, Health Planning and Organization (Zone I)

Objective: To collaborate with the Governments of the countries and territories of Zone I in the formulation of national health plans and the training of planners.

Probable duration: 1965-

Assistance provided: 1 medical officer, 3 administrative methods officers, 1 administrative assistant, 1 short-term consultant, and 1 secretary; and equipment and supplies.

Work done: This project has been active in supplying the requests for technical assistance on planning to countries and territories in Zone I, particularly Barbados, Jamaica, Trinidad and Tobago, and Venezuela.

In Barbados a survey of the organization of the Personnel Section was carried out at the Ministry of Health and Community Development. In addition, the Organization was associated with the health planning aspects of the work of the Tripartite Economic Mission from Canada, United Kingdom, and United States of America regarding the development of the Leeward and Windward Islands.

Lectures in personnel management were given to the staff at the Ministry of Health and at the University of the West Indies, Jamaica.

The Organization provided technical assistance in the work of the Sectoral Planning Committee of the Ministry of

Health and Housing of Trinidad and Tobago, and in the course of formulating the National Health Plan a draft on planning methodology applicable to the Caribbean territories was developed.

The collaboration in Venezuela consisted of technical assistance in a survey of cost of hospital services.

Discussions on the Planning Process at the Annual Zone I Staff Meeting helped to define the role of the various projects in support of national health development. Technical assistance bearing on the nursing implications in the planning process was provided to the meeting of Caribbean nursing staff (held in Barbados). The close association between the health planning staff and administrative methods and budget and finance consultants has been an outstanding feature of this project.

PAHO/RB, WHO/RB

AMRO-3103 (-325), Health Planning and Organization (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in the formulation of national health plans and the training of planners.

Probable duration: 1965-

Assistance provided: Advisory services by 1 short-term consultant assigned to Guatemala-3100, 1 short-term consultant assigned to AMRO-3100 and by Headquarters professional personnel.

Work done: Early in the year, a review of the planning activities in Costa Rica was carried out. The terms of reference for a National Health Planning Coordination Committee were drawn up. Assistance was also provided in the training of national planning personnel.

In El Salvador the Organization assisted in an evaluation of the National Health Plan.

The Government of Guatemala asked for and obtained technical assistance in planning, and the same PAHO/WHO consultant was also associated with the work of the Tripartite Economic Mission for Central America. He further assisted in the preparation of a Chapter on Health Development in Central America, in a project being developed by the Latin American Institute for Economic and Social Planning.

In Honduras the Organization cooperated with a mission from the Inter-American Development Bank to examine the investment requirements for hospital facilities.

The Organization also collaborated in a National Planning Conference in Panama.

AMRO-3104 (-38), Planning (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the formulation of national health plans and the training of planners.

Probable duration: 1963-

Assistance provided: 1 medical officer.

Work done: The Government of Bolivia published the 10-year National Health Plan, produced with assistance from the Organization, early in 1966.

In Colombia much of the material utilized for the country's

health diagnosis has been produced by the Milbank Memorial Fund and PAHO-assisted Health Manpower Studies project. Steps were suggested for the incorporation of this valuable technical information into the national planning process.

The Government of Ecuador was assisted in the implementation of the National Health Plan, and the Government of Peru in its planning activities.

PAHO/RB

AMRO-3106 (-322), Planning (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the formulation of national health plans and the training of planners.

Probable duration: 1963-1967.

Assistance provided: 1 medical officer, and advisory services by 2 short-term consultants assigned to Chile-3100 and 2 assigned to Argentina-3100.

Work done: The Government of Argentina drew up a program of work for planning activities at federal and provincial levels and in spite of the difficulties inherent in a complex federal political structure, the planning process made significant progress. Planning methodology applicable to a federal structure was being developed and the relative responsibilities of the federal and provincial governments had become better defined. PASB staff members assisted in the preparation for a meeting of Provincial Ministers of Health, held in November, during which planning strategy was discussed.

Technical orientation was also provided in the work of the Coordination Committee on Planning of the Government of Argentina and in the preparation and implementation of the health plans of the Provinces of San Juan and Tucumán.

Assistance was provided to the Government of Chile in investigating methods of approaching the macroanalysis of the total health sector and in formulating and implementing the national health plan. It is estimated that during 1966 the planning process in Chile improved the service output of some activities by as much as 25% at an investment cost in planning of 1%. The Organization also assisted in the inservice training of national personnel.

Technical assistance in planning and inservice training of national personnel was supplied to the Governments of Paraguay and Uruguay.

PAHO/RB

AMRO-3107 (-346), Public Health Administration (Caribbean Area)

Objective: To assist the Governments of the islands in the eastern Caribbean in obtaining maximum returns for investments in health services, through the study of their health problems and resources, definition of objectives and establishment of priorities, and formulation and implementation of programs within the framework of their social and economic development plans.

Probable duration: 1963-

Assistance provided: 1 medical officer.

Work done: The Governments were assisted in determining their requirements for health programs in order to submit their requests to the Tripartite Economic Mission (Canada, United Kingdom, and United States of America) in charge of carrying out an economic survey.

A preliminary review was made of the health services in the British Virgin Islands. The problem of protein malnutrition in the Caribbean area was tackled, but this remains a serious problem requiring exceptional measures. The adviser coordinated the special work developed in the islands in the fields of maternal and child health, communicable disease control (including immunization), nutrition, health education, water supplies and environmental sanitation, and medical care administration.

Integrated health programs were under way in Antigua, Dominica, Grenada, Montserrat, St. Lucia, and St. Vincent.

A special evaluation of 3-year's work in Dominica was carried out in May and showed, among other things, that the infant death rate had fallen from 116 in 1961 to 56 in 1965 (corrected figure), and that the combined death rate per 100,000 population from malnutrition and gastroenteritis had fallen from 342 in 1961 to 155 in 1965.

The Pan American Sanitary Bureau promoted and participated in the Annual Conference of Chief Medical Officers that took place in April in Jamaica.

An intensive program of staff education and training was carried out in the area.

WHO/RB

AMRO-3108, Field Office at El Paso, Texas

Objective: To stimulate joint study and planning of health activities along the Mexico-United States of America border; and to facilitate the exchange of epidemiological information.

Probable duration: 1952-

Assistance provided: 1 medical officer, 1 sanitary engineer, 1 veterinarian, 3 secretaries, and 1 short-term consultant; equipment and supplies; costs of the Annual Meeting; and general services.

Work done: The El Paso Field Office continued to do liaison work between Mexico and the United States of America in respect of health activities in the border area. The XXIV Annual Meeting of the United States-Mexico Border Public Health Association was held during the week of 6-10 June at Saltillo, the capital of the State of Coahuila. Twelve technical-administrative resolutions were approved on, among other subjects, the conduct of a seminar on environmental sanitation; a study of training requirements in environmental sanitation; and the holding of a course on air and water pollution. Other resolutions referred to communicable diseases, vector control, and the detection of cervico-uterine cancer. The 4 technical sessions were attended by 300 persons and 44 scientific papers were presented and discussed.

The Field Office continued its advisory services and collaboration in the organization and buttressing of general health services and in specific activities for the control and eradica-

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tion of communicable diseases, environmental sanitation, and personnel training.

The Mexican authorities intensified their vigilance at the border-crossing points as part of their program to prevent reinfestation of the country by the urban yellow fever vector. The smallpox vaccination programs progressed normally on the Mexican side. In some towns, as at Matamoros and Reynosa, only 60% of the protection goals was achieved, but from 80% to 90% was reached in Juárez, Nogales, and Mexicali. The incidence of tuberculosis and venereal diseases continued on the rise in most of the states on both sides of the border. Tuberculosis control measures were taken in Matamoros, Nuevo Laredo, Ciudad Juárez, Agua Prieta, Nogales, and Mexicali, with 60% to 80% of the BCG vaccination goals achieved and 119,228 photofluorographies taken in fixed or mobile units. Most of the patients under control continued in ambulatory treatment at the clinics which, for their part, continued investigating the state of health of the contacts. The poliomyelitis vaccination campaign was also conducted normally along the border. There was an outbreak of 67 cases in an area in northern Tamaulipas; appropriate steps were taken and the situation was rapidly brought under control. Venereal diseases are a special problem on the Mexico-United States border owing to the heavy flow of people who cross it—more than 6 million persons per year. Some statistics for 1965 and 1966 indicate a rise of 75.8% in the number of primary and secondary syphilis cases, of 15.2% in cases of early latent syphilis, and of 38.5% in cases of gonorrhoea. Although the full extent of the leprosy problem in the border zone is unknown, 30 cases were diagnosed on the Mexican side and 23 in the State of California. In October the State of Texas launched a campaign to control this disease.

The campaign against the zoonoses—especially bovine tuberculosis, brucellosis, and rabies—were continued on both sides of the border.

The 10 Binational Councils or Local Committees, which for years have been collaborating significantly in the conduct of health programs, continued their activities in the border towns.

Noteworthy developments in environmental sanitation were the installation of water meters in Tecate, Baja California, and the completion of a sewage treatment plant at San Luis Río Colorado and improvements to the one at Agua Prieta, both of them in the State of Sonora, Mexico; the sewage treatment plant at Douglas, Arizona, in the United States of America, was also improved.

In personnel training the following activities were carried out: several short courses on food handling and vector control provided training to 1,189 persons, and a 4-day course on practical procedures for the control of food-transmitted diseases was attended by 30 professionals (15 from the United States of America and 15 from Mexico).

Several international seminars also took place, the most significant being the one on Environmental Sanitation in Urban Planning (1 week) held in November in Mexico City and the one on Eradication and Surveillance of *Aedes aegypti* (2 days) held in Houston, Texas, in December.

PAHO/RB

AMRO-3110 (-283), Coordination of International Research

Objective: To stimulate the development and implementation of a biomedical and health research program related to the health goals of the Americas; to promote collaboration and communication among scientists; and to accelerate the training of research workers in the Western Hemisphere.

Probable duration: 1962.

Assistance provided: 2 short-term consultants, secretarial services, travel and per diem allowances for the temporary advisers constituting the 15-member PAHO Advisory Committee on Medical Research and the 14 participants in the special session on life at high altitudes, other costs of the ACMR meeting, and advisory services by Headquarters professional personnel.

Work done: The Fifth Meeting of the PAHO Advisory Committee on Medical Research was held from 13 to 17 June. The following 3 items were reviewed in detail by the Committee:

A 5-year summary of PAHO research activities covering 90 research projects stimulated, coordinated, or financially assisted by the Organization since 1961;

The subject of life at high altitudes is of considerable scientific interest, particularly to Latin America where several million people live in areas of over 3,000 meters above sea level. The experts explored the natural and acquired acclimatization of man to high altitudes, examining its morphological, physiological, clinical, and demographic patterns and delineating areas wherein increased research efforts are desirable. The report on this 1-day, 15 June, special session was issued as Scientific Publication PAHO 140.

A documented report on the migration of health personnel, scientists, and engineers from Latin America was also issued (see AMRO-3114).

In addition to the above, the Committee examined reports on a program for public health research in Argentina and reviewed others on nutritional anemias, endemic goiter, mental health, sanitary engineering, manganese poisoning, textbooks for medical students, the International Biological Program, population dynamics, and selected research activities of the Institute of Nutrition of Central America and Panama and the Pan American Foot-and-Mouth Disease Center.

Other activities carried out under this project included the International Conference on Vaccines against Viral and Rickettsial Diseases of man, held at Headquarters from 7 to 11 November (see AMRO-3310), and the second meeting of the Chagas' Chemotherapy Research Group, held in Belo Horizonte, Brazil. The Group continues its function of coordinating among its members both the clinical investigations and the screening and evaluation of selected chemotherapeutic compounds likely to be effective in Chagas' disease.

PAHO/RB

AMRO-3114, Study on Migration of Trained People from Latin America

Objective: To determine the relevant facts associated with the international migration of Latin American scientists; to

analyze the forces at work; and to suggest practical and acceptable measures to moderate the rate of migration.

Duration: 1965-1966.

Assistance provided: 4 short-term consultants; and costs of a subcommittee meeting.

Work done: The consultants visited Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela to gather first-hand information on the forces bearing on migration of trained personnel and prepared a draft report which was reviewed by the PAHO Subcommittee on Migration at a meeting in Rio de Janeiro in May. The revised draft was critically examined by the PAHO Advisory Committee on Medical Research at its Fifth Meeting, in June, and the final report was published as Scientific Publication PAHO 142. The Committee agreed that it is not desirable to reduce migration by increasing restrictions concerning international travel and residence and emphasized that the most rewarding approach is to improve the working conditions for biomedical scientists in Latin America.

PAHO/RB

AMRO-3116, International Transportation of Human Remains

Objective: To draft the bases for regulations for the transportation of human remains in the Americas.

Duration: 1965-1966.

Assistance provided: Costs of the meetings and legal advice by Headquarters personnel.

Work done: The Governments were asked to supply to the Organization information on their current legislation, which was submitted to the 52nd Meeting of the Executive Committee (Washington, D. C., April 1966) for consideration. In compliance with Resolution XVIII of that Meeting, an Advisory Group was convened in August and its report, together with the national legislation, was presented to the XVI Meeting of the Directing Council (Washington, D. C., September-October), which examined both and asked the Director to prepare a final draft on the subject (Resolution XXXVI). Accordingly, the Director assembled an Expert Committee (Washington, D. C., December) which, using for its deliberations the report of the Advisory Group and a PASB-prepared document containing the current legislation in 19 countries and 7 other political divisions of the Americas, prepared the bases for the standards, which were forwarded to the Governments for review and comment.

All the aforementioned documentation was presented to the 54th Meeting of the Executive Committee (Washington, D.C., 18-22 April 1966), which designated a working group to study it and then approved revised bases for the standards which it forwarded to the XVII Pan American Sanitary Conference (26 September-7 October) with the recommendation that it approve the standards on the international transportation of human remains, and transmit them to the Governments for appropriate incorporation into their respective legal structure (Resolution XVIII). In Resolution XXIX the Conference approved and agreed to forward to the Governments of the Organization the Declaration and Standards on the International Transportation of Human Remains, recommended their application to the Governments, and delivered the Declaration to the Director-General of the World Health

Organization. The Conference also invited the Governments to advise the Director of the Bureau of the measures taken and asked the latter to work for the introduction in the different countries of the standards approved by the Conference.

The program was completed with Resolution XXIX of the Conference, and subsequent efforts to obtain the adoption by the Governments of the standards on the international transportation of human remains were added to the normal activities of the Bureau.

AMRO-3118, Social Science Research in Health

Objective: To promote research by social scientists on health problems, and research in the social sciences whose findings will be of use in the planning and administration of health services.

Probable duration: 1966-

Assistance provided: 2 short-term consultants, 13 temporary advisers, 1 interpreter and other costs of the meeting.

Work done: An anthropologist from the School of Public Health of the University of North Carolina spent July and August in Peru to make a preliminary estimate of the feasibility of research at the village level on the impact of health services on the community.

An Advisory Committee on Social Science Research in Health met in Washington, D. C., from 24 to 26 October, to review the report on field work in Peru and make suggestions for further action.

At year's end, the Department of Epidemiology of the School of Public Health of the University of North Carolina, in consultation with applied anthropologists of Cornell University, was preparing a proposal for field research in 1967-1968.

PAHO/OF

U. S. Department of Defense

AMRO-3201 (-289), Nursing (Zone I)

Objective: To collaborate with the countries and territories of Zone I in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1963-

Assistance provided: 1 nurse adviser and 1 administrative assistant.

Work done: A 4-day meeting of PAHO/WHO nursing staff was conducted, in May, to coordinate the nursing activities of the various projects as well as to determine additional needs.

Advice on the development of nursing activities was provided to national and international staff of Barbados-6300, Guyana-3200, Jamaica-6301, Trinidad and Tobago-3200, Venezuela-4300 and -4800, West Indies-3200, and AMRO-3207 and -6301.

PAHO/RB

AMRO-3202 (-290), Nursing (Zone II)

Objective: To collaborate with the Governments of the countries of Zone II in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

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Probable duration: 1963-

Assistance provided: 1 nurse adviser and 1 secretary; and a small amount of equipment and supplies.

Work done: Advice on development of nursing activities was provided to national and international staff of projects Cuba-3100 and -6300, Dominican Republic-3100 and -6300, Haiti-3100, and Mexico-6300; assistance was also given in the administrative aspect of the programed instruction project AMRO-6310.

PAHO/RB

AMRO-3203 (-291), Nursing (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1963-

Assistance provided: 1 nurse adviser and 1 secretary.

Work done: A 3-day meeting of PAHO/WHO nursing staff was held to coordinate activities and determine additional needs.

Advisory services were provided to the national and international staff engaged in nursing activities in British Honduras-6300, Costa Rica-3100 and -6300, El Salvador-3100, Honduras-3100 and -6300, Nicaragua-3100, and Panama-3100, and in the development of project AMRO-3210.

PAHO/RB

AMRO-3204 (-292), Nursing (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1952-

Assistance provided: 1 nurse and 1 secretary.

Work done: The activities of project AMRO-3210 were coordinated with those of other projects of the countries involved. As the nursing position in Bolivia-3100 was vacant, assistance was provided to the health authorities in determining future needs. Advisory services were provided in the nursing activities of projects Colombia-3100, Ecuador-3100 and -6300, and AMRO-0404.

PAHO/RB

AMRO-3206 (-294), Nursing (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1963-

Assistance provided: 1 nurse adviser and 1 clerk stenographer; and a small amount of equipment and supplies.

Work done: A 5-day staff meeting of PAHO/WHO nursing staff was held to facilitate the future developments of projects.

Advisory services were provided to the Governments in relation to nursing problems, development of programs, and the determination of future needs. Specifically, in Argentina, the adviser coordinated nursing activities related to projects -3102, -4800, -6300 and -6301 and provided orientation and guidance on administration of nursing services (-3104) and the development of a public health course for midwives (-4102), as well as on the development of services for the care of babies in Córdoba. Other services related to teaching activities and administration of nursing services were provided to projects Chile-3200 and Uruguay-3100 and -4800.

PAHO/RB

AMRO-3207, Courses on Nursing Administration and Supervision (Zone I)

Objective: To improve the nursing administration of the health services in the eastern Caribbean through short courses in nursing administration and supervision and through followup visits.

Probable duration: 1966-1968.

Assistance provided: 1 nurse adviser and consultant services by the nurse adviser assigned to project AMRO-3201; and equipment and supplies.

Work done: A 3½-month course in ward administration and supervision was conducted, in Barbados, for 20 nurses from the eastern Caribbean islands. Followup visits were made to Dominica and St. Kitts. The course was evaluated and some modifications were made in the program for the second course, planned for January 1967.

A 6-month program of inservice training was commenced in November for 20 ward assistants employed in the Queen Elizabeth Hospital of Barbados. Two-hour sessions were conducted in the same hospital, for 50 nurses in small groups, on the effective use of ward assistance.

PAHO/RB

AMRO-3210, Hospital Nursing Services

Objective: To assist the countries in Zone III and Zone IV in the improvement of nursing care in hospitals by fostering, and advising on, their establishing of continuing education programs in administration of nursing services, objectives and norms for the development of hospital nursing services, and inservice education programs for the training of auxiliary nursing personnel.

Probable duration: 1966-

Assistance provided: 1 nurse adviser, 3 short-term consultants, and advisory services by the nurses assigned to projects AMRO-3202, -3203, and -3204; equipment and supplies; and the following fellowships:

Awards	Place of origin	Field of study	Place of study	Months
12	El Salvador	Nursing services	Nicaragua	¾
12	Panama	Ditto	Ditto	¾

Work done: Advisory services were provided to the Benjamin Bloom and the psychiatric hospitals in El Salvador, to the psychiatric and Santo Tomás hospitals in Panama, and to the San Juan de Dios Hospital in Bogotá, Colombia. In the latter, a 5-year plan of action was developed with specific goals for each year. At the National School of Nursing in Guatemala an evaluation was made of the basic and postbasic courses in administration of nursing services, and assistance was provided in the planning of a continuing education program in nursing-services administration which was scheduled to begin in 1967.

The first of a series of workshops on continuing education in administration and supervision of hospital nursing services was held from 19 to 23 September in Managua, for 54 nurses from El Salvador, Nicaragua, and Panama. The same subject content was taught in Lima, from 3 to 7 October, for 51 nurses from Bolivia, Ecuador, and Peru. Followup visits were made to all participants in their institutional setting to assist them in the development of the project they had selected to improve administration in the unit where they were working. Followup workshops were planned for 1967 to evaluate progress in administration and supervision. A 1-day workshop on progressive patient care was conducted for 34 nurses in El Salvador.

In addition, a total of 30 hours of conferences on administrative theory were given to 120 nurses from 5 institutions in Colombia, El Salvador, Panama, and Peru.

PAHO/RB

AMRO-3300 (-45), Laboratory Services

Objective: To cooperate with Governments in the improvement of public health laboratory services and in establishing new sections in existing laboratories, in the production and control of biological products, and in the expansion or establishment of animal colonies.

Probable duration: 1955-

Assistance provided: Advisory services by Headquarters and professional personnel assigned to projects AMRO-3301 and -3303; a grant; equipment and supplies; biological reagents; and printed material.

Work done: The laboratories of Bolivia, Chile, Colombia, Cuba, El Salvador, Guatemala, Jamaica, Mexico, Nicaragua, Panama, Peru, and Uruguay were provided with technical assistance and a total 1,691 biological standards, microbial strains, and reference reagents. Cell lines for tissues culture were furnished to Mexico.

Technical literature was provided to Argentina, Bolivia, Chile, Colombia, Cuba, El Salvador, Guatemala, Mexico, and Nicaragua.

Fourteen countries were participating in the international program of syphilis serology evaluation being carried out by the Communicable Disease Center of the United States Public Health Service.

See also the -3301 projects of Argentina, Brazil, Colombia, and Ecuador, as well as Venezuela-3300 and -3301.

WHO/RB

AMRO-3301 (-358), Laboratory Services (Caribbean Area)

Objective: To develop, at the University of the West Indies, in Kingston, Jamaica, a program for training laboratory technicians for English-speaking countries and territories in the Caribbean area, stressing the importance of laboratory practices in the curative and preventive aspects of medicine.

Probable duration: 1964-1968.

Assistance provided: 1 short-term consultant; supplies; and a grant to cover publication costs.

Work done: The survey (started in 1965) to evaluate problems and available resources in the area was completed and a long-range plan of laboratory services improvement was started. The Third Training Course for Laboratory Technicians conducted under sponsorship of the University of the West Indies and the Pan American Sanitary Bureau was carried out in Jamaica. Six of the 10 students attended with fellowships awarded under other projects. A Manual of Methods and Techniques was prepared and reproduced.

See also Venezuela-3300 and -3301.

PAHO/RB

UNICEF

AMRO-3303, Laboratory Services (Zone III)

Objective: To assist the Governments in expanding the services of the public health laboratories in the countries of Zone III and in establishing local laboratories according to the needs and means of the countries, in keeping with the respective national health plans.

Probable duration: 1965-

Assistance provided: Advisory services by Headquarters and Zone III Office staff; and travel expenses and per diem allowances for participants in the Meeting of Laboratory Directors.

Work done: In accordance with Resolution VI of the X Meeting of Ministers of Health of Central America and Panama (Panama City, Panama; August 1965) a Meeting of Laboratory Directors of Central America and Panama was held in Panama City from 10 to 12 August. The meeting was organized by the Higher Health Council of Central America and Panama, with the cooperation of the Pan American Sanitary Bureau.

PAHO/RB

AMRO-3307 (-76), Vaccine Production and Testing

Objective: To provide vaccine-testing services to vaccine-producing laboratories in the Americas.

Probable duration: 1954-

Assistance provided: Contractual services.

Work done: The Organization received and forwarded to reference laboratories, for control tests, 38 batches of 7 products prepared in 4 countries of the Hemisphere.

WHO/RB

University of Michigan

AMRO-3310, International Conference on Vaccines against Viral and Rickettsial Diseases of Man

Objective: To review present knowledge and delineate future research needs in the prevention of viral and rickettsial diseases of man, as well as chemotherapy and other therapeutic approaches.

Place and duration: Washington, D. C., 7-11 November 1966.

Assistance provided: Travel and per diem allowances for 125 participants; and cost of seminar and of publication of proceedings.

Work done: The Conference brought together 280 scientists from 27 countries throughout the world. Publication of proceedings (full papers and discussions) was scheduled for early 1967.

PAHO/RB, PAHO/OF, WHO/RB American Cyanamid Co.

AMRO-3401 (-356), Health Education (Caribbean Area)

Objective: To cooperate with the countries and territories of Zone I in the development of health education activities and the training of personnel, in order to improve and extend public health services.

Probable duration: 1963-

Assistance provided: 1 health educator and 1 short-term consultant; and equipment and supplies.

Work done: In Barbados, collaboration was provided in a survey of training resources conducted on that island and in the analysis of the data. One 8-week Course for Ward Nurses was also provided.

A Workshop on Health Education was conducted in Montserrat with a view to improving the contribution of teachers to health education in the schools. The workshop lasted 10 days and was attended by 40 elementary school teachers.

PAHO/RB, WHO/UN-TA

AMRO-3407 (-112), Regional Fundamental Education Center for Community Development in Latin America (CREFAL)

Objective: To cooperate with the Center by teaching the health aspects part of the community development courses.

Probable duration: 1951-1953; 1961-1970.

Assistance provided: 1 medical officer; and equipment and supplies.

Work done: The XIV Regular Course of 30 weeks' duration was conducted from February to December for 66 students (selected from among 166 applicants) who had been awarded fellowships by OAS and UNESCO, distributed as follows: Argentina, 6; Bolivia, 3; Brazil, 3; Chile, 6; Colombia, 4; Costa Rica, 2; Cuba, 2; Dominican Republic, 2; Ecuador, 5; El Salvador, 2; Guatemala, 3; Haiti, 3; Honduras, 1; Mexico, 8; Panama, 3; Paraguay, 4; Peru, 4; Uruguay, 2; Venezuela, 2; and Portugal, 1. Twenty-five of these students (37.9%) work in the field of education, 10 (15.2%) in agriculture, 7 (10.6%) in social welfare, 5 (7.6%) in social sciences, 4 (6.0%) in public health, 2 (3.0%) in civil engineering; and 13 (19.6%) in other fields.

In October and November a 6-week Course on Food and Community Development was conducted for 28 students, from 17 countries, who were awarded fellowships by the Government of Venezuela, the U. S. Agency for International Development, UNESCO, and the Community Development Foundation; 15 were high-level officers in national programs and 11 were directors of regional programs. Likewise, at the request of Mexico's Administrative Committee of the Federal Program for School Construction, a special 5-day CREFAL-CAPFCE course was organized. It dealt with factors affecting community development as well as techniques for channeling such development toward specific purposes, such as the construction of school buildings by the community concerned. This course was attended by 15 CAPFCE engineers and architects from the State of Michoacán.

Under the auspices of the U. S. Agency for International Development, a 3-week special CREFAL-USAID course on community development was attended by 32 officials from Brazil, Colombia, Guatemala, Mexico, Peru, and Venezuela. The 32 students, who had been awarded fellowships by USAID and ILO, represented the following professions: education, 7; civil engineering, 6; social welfare, 5; agronomy, 5; social sciences, 6; consumers' cooperatives, 2; and journalism, 1.

PAHO/RB **FAO, ILO, OAS, UN, UNESCO**

AMRO-3500 (-241), Regional Advisory Committee on Health Statistics

Objective: To obtain recommendations for the implementation of a strong regional program to improve basic statistical data for use in health programs, for the extension of education and training, and for the development of statistical research.

Probable duration: Biennial meetings, 1960-

Assistance provided: 9 temporary advisers, 2 short-term consultants, and costs of the Fourth Meeting and of publishing the Committee Report.

Work done: Early in the year, in preparation for the Fourth Meeting of the Regional Advisory Committee on Health Statistics, a survey was made of the use of computers in the health field in Latin America, and a report was presented to the Committee when it met at Headquarters from 6 to 10 June.

The principal topics discussed were: (1) the recommendations of the Technical Discussions held during the XVI Meeting of the Directing Council of the Pan American Health Organization (1965) on the improvement of vital and health statistics and of the Technical Discussions held during the Nineteenth World Health Assembly (1966) on the same subject; (2) the preparation of the 1965 Revision of the *International Classification of Diseases* in Spanish and Portuguese; and (3) the use of computers and status of mechanization of health statistics data in Latin America.

The Committee recommended steps to improve the collection, tabulation, and use of vital and health statistics in the Region.

Promotion of a wide distribution and use of the 1965 Revision of the Classification through seminars, training courses, and teaching materials was urged.

The Committee endorsed the recommendations of the Technical Discussions of the PAHO Directing Council; emphasized the need for each country to determine its statistical personnel requirements, as to quantity and level of training, and to develop plans for their training; and recommended operational research methods of improving statistics in order to provide essential data for planning and for basic research in health.

In view of the value of computers in health programs the Committee recommended that the Organization provide advisory services to the countries on the use of computers, studying their feasibility, applicability, and practicality of operation. The Committee also recommended that PASB study the possibilities of establishing a computer center for training personnel, for the development of systems applicable in several countries, and for research and pilot operations in the development of methodology.

PAHO/RB

AMRO-3501 (-157), Health Statistics (Zone I)

Objective: To collaborate with the countries and territories of Zone I for the purpose of improving their vital statistics systems; and to provide technical advisory services on the use of statistical data for health planning and on the statistical aspects of projects.

Probable duration: 1964-

Assistance provided: 1 statistical adviser; and teaching materials for a training course on health statistics.

Work done: The eastern Caribbean began reaping the benefits of the training courses for intermediate level health statisticians regularly held at the University of the West Indies since 1965—in 1966 all persons thus trained were being utilized in health fields. This availability of trained health statisticians resulted in the establishment of new medical records departments in Government hospitals in Antigua and St. Lucia and in public health departments in Dominica, St. Lucia, and St. Vincent. In places where services already existed, the placement of trained personnel strengthened the statistical unit at either central, parish, or local level.

The Ministry of Health of Barbados established at the central level a health statistical unit coordinated with the Central Statistics Office, the Registrar General's Office, and the Queen Elizabeth Hospital. The keeping of statistical records at the Hospital was strengthened with the addition of trained personnel.

In Jamaica the most recent and outstanding development was the operational study to use the services of senior health workers, including senior public health inspectors, to obtain reliable vital and health statistics. Training in vital and health statistics for inspectors from 13 parishes was therefore scheduled for 1967. The Health and Manpower Resources Committee analyzed hospital, laboratory, maternity, child health, and medical care statistics. IBM tabulating equipment was installed in the Registrar General's Office to facilitate timely publication of vital and health statistics and hospital discharges.

In Trinidad and Tobago the medical records and hospital statistics departments of the Port of Spain General Hospital were reorganized.

The subject of Vital and Population Statistics was included in the discussions of the Caribbean Commonwealth Government Statisticians Conference, held in Port of Spain in June. Methods of improving registration in countries or territories with less than 95% registration were also discussed.

The University of the West Indies trained 27 intermediate level health statisticians in a 3½-month course: 1 each from Antigua, Bermuda, British Honduras, British Virgin Islands, Dominica, Grenada, Montserrat, and St. Vincent; 4 from Barbados; and 15 from Jamaica.

The University's education and training program also includes, within the Department of Social and Preventive Medicine, the teaching of biostatistics for preclinical and clinical students of the Medical Faculty.

PAHO/RB, PAHO/OF

UNICEF

AMRO-3502 (-144), Health Statistics (Zone II)

Objective: To collaborate with the Governments of the countries of Zone II for the purpose of improving their vital and health statistics systems; and to furnish technical advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1958-

Assistance provided: 1 statistician and advisory services by the statisticians respectively assigned to the -3100 projects of Haiti and Dominican Republic.

Work done: In Cuba, where there is a special interest in improving the registration of births, methods were being tried out in hospitals and maternities in order to develop procedures for the whole country. It is estimated that around 75% of births occur in institutions. The School of Public Health revised its programs in statistics not only for technicians in statistics but also for other technical and professional health personnel.

The Division of Statistics of the Ministry of Health and Social Welfare of the Dominican Republic developed a program of work (for 1967) which includes new activities in collecting and processing data on services and resources as well as on the handling of vital statistics. In 1966 a national Working Group for the Improvement and Dissemination of Vital and Health Statistics was organized. This Group, which acts as National Committee on Vital and Health Statistics, played a vital role in bringing together the country's health statistical technicians to work for improved coordination. It also fostered the formation of working groups to study better ways of collecting, tabulating, and analyzing vital and health statistics. Departments of Medical Records and Statistics were organized in 5 hospitals of the country. A 2-week course on records was conducted for 17 persons. The Registration Area for births and deaths of San Cristóbal was reorganized and was being periodically evaluated, and new certificates of death and fetal death were being tried out to improve the quality of information.

The statistician assigned to project Haiti-3100 spent a month studying the systems in use at the General Hospital of Port-au-Prince and advising on ways to introduce improvements. Once this hospital is established as a demonstration center, courses will be provided for statistical auxiliaries of the hospitals of the Republic. Data including a test of com-

VIII. PROJECT ACTIVITIES

pleteness of civil registration were being tabulated from a census in Arcahaie, in order to establish birth and death registration areas in the Plain. Plans were prepared to take a census of health resources, scheduled to be initiated in early 1967, and forms were designed and pretested; instructions for training personnel and for the assignment of teams were also prepared.

An experimental study was under way in the State of Hidalgo, Mexico, of methods and procedures for a new system to gather information on resources and for collecting and recording data on services of health centers and hospitals; a manual of procedures was being prepared. Once this experimental area is developed as a demonstration area, courses will be planned to train statistical auxiliaries.

WHO/RB

AMRO-3503 (-86), Health Statistics (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III for the purpose of improving their vital and health statistics systems; and to furnish technical advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1955-

Assistance provided: 1 statistician, 1 short-term consultant, and advisory services by 1 of the medical records librarians assigned to project AMRO-6708; and equipment and supplies.

Work done: Costa Rica established a center for training in medical records and hospital statistics and the first course was conducted from 18 July to 19 November. Of the 16 students who attended, 3 were respectively from El Salvador, Nicaragua, and Panama. Plans were being developed to unify the various statistical activities of the health services of Costa Rica.

The Ministry of Public Health and Social Welfare and the Faculty of Medicine of the Autonomous University of El Salvador began a sample survey of the epidemiology of Chagas' disease. The Department of Preventive Medicine of the School made a retrospective survey of the nutritional status of families in localities of 5,000 to 30,000 inhabitants using sampling methods. The Department of Statistics of the Department of Health continued its study of new forms for collecting basic data in hospitals and health centers.

The Department of Public Health of Guatemala made a clinical study of ocular pressure in 3,000 residents; the data were being analyzed.

In Honduras the San Felipe Hospital (Tegucigalpa), which has 889 beds, reorganized its filing system using the terminal digit system. The National Tuberculosis Sanatorium also centralized and improved its records system.

An elementary statistics course was conducted in Panama, in March, for 45 students. The purpose of the training was to improve the recording and transmission of basic statistical information from hospitals and health centers.

The Ministry of Public Health of Nicaragua trained 50 statistical auxiliaries in a course, held from 19 September to 15 October, for hospital and health-center personnel.

WHO/RB

AMRO-3504 (-143), Health Statistics (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV for the purpose of improving their vital and health statistics systems; and to furnish advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1956-

Assistance provided: 1 statistician and advisory services by 1 of the medical records librarians assigned to project AMRO-6708.

Work done: In Colombia, interview and clinical examination of data obtained in a national morbidity survey was being processed.

Completed forms from the censuses of physicians and nurses for the Health Manpower Study (Colombia-6200) were to be used as a basis for continuing registers by the Colombian Association of Medical Schools and the Nursing Section of the Ministry of Public Health. Procedures for keeping the registers current were being studied.

The School of Public Health of the University of Antioquia, in Medellín, trained 21 students in the fourth intermediate level statistical technicians course. Plans were made to expand the course from 6 months to 11 months, in order to give additional training on hospital records and statistics.

A meeting on improvement of civil registration was held in La Paz, Bolivia, in April. The participants were not only from Paraguay and Bolivia but also from international organizations concerned with registration.

Schedules and instructions were prepared for an initial census in 2 communities to be included in an epidemiological study of population dynamics in Peru. The first census was taken in December.

See also Perú-3500.

WHO/RB

AMRO-3506 (-159), Health Statistics (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI for the purpose of improving their vital and health statistics systems; and to furnish technical advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1959-

Assistance provided: 1 statistician and advisory services by the statistician assigned to project Paraguay-3100; and equipment and supplies.

Work done: In Chile the National Committee on Vital and Health Statistics devoted its attention to the forms for collecting data in the National Health Service, where plans were under way to use a computer. A new form for Medical Certification of Death was developed and tested in selected areas. Eight 2-week courses were conducted to train 70 auxiliaries in hospital statistics.

To improve the quality and coverage of its vital statistics Paraguay established a Committee on Vital Events which conducted in the District of San Ignacio a survey on the completeness of registration of births, marriages, and deaths; the survey was repeated after 8 months. The system of notification of communicable diseases was extended to the entire country during the year. A 6-month course was con-

ducted for 16 statistical-staff members of the country's Health Regions.

See also the -3500 projects of Argentina and Uruguay.

PAHO/RB

AMRO-3507 (-266), Regional Development of Epidemiological Studies

Objective: To obtain, through special investigations, accurate and comparable data on causes of death of adults in selected cities of the Americas.

Probable duration: 1961-1967.

Assistance provided: 1 epidemiologist, 2 statistical assistants, 5 short-term consultants; secretarial assistance and other services; and equipment and supplies.

Work done: Questionnaires relating to 43,298 adult deaths were received and had been reviewed by the end of 1965. During 1966 processing of the data and the main analytic tabulations had been completed. Preparation of the final report, scheduled for publication in English and Spanish, was far advanced at year's end.

In collaboration with the National Center for Health Statistics and the National Heart Institute of the U. S. Public Health Service an analysis of multiple causes of death using material from the Epidemiological Studies was started.

The Studies also prompted an epidemiological investigation of cancer of selected body sites, started in Buenos Aires (Argentina-3503).

PAHO/RB, PAHO/OF

USPHS-NIH

AMRO-3508, Demographic Research

Objective: To develop epidemiological studies of natality, including abortions, live births, and conditions of infants at birth.

Probable duration: 1966-

Assistance provided: 1 temporary adviser and advisory services by Headquarters, Zone V Office staff, and by the statisticians assigned to projects AMRO-3504 and Brazil -3500.

Work done: Questionnaires and instructions were developed and pilot testing was carried out for 2 epidemiological studies of natality—including abortions, live births, and conditions of infants at birth. The city of São Paulo, Brazil, and 3 small communities adjacent to Lima, Peru, were selected for study. In the 3 communities in Peru all women in the child-bearing ages will be periodically interviewed for at least 2 years. In São Paulo a 1-year record will be kept on 1,500 women of the same age group.

WHO/RB

AMRO-3513, Inter-American Investigation of Mortality in Childhood

Objective: To carry out in selected urban and rural communities of the Americas an investigation of mortality which will produce accurate and comparable death rates for

infancy and childhood, including studies of the nutritional, sociological, and environmental factors responsible for excessive mortality.

Probable duration: 1966-1970.

Assistance provided: 6 temporary advisers; and costs of a meeting.

Work done: The principal collaborators from the 5 areas in Latin America which will participate in the pilot stage of the Investigation met in Washington, D. C., from 17 to 20 October. The objectives of the pilot study, methods, procedures, questionnaire, and manual to be used were discussed.

The questionnaires were printed and letter agreements were drawn up between PAHO, ministries of health, and the medical schools that will participate in the study.

PAHO/OF

AID

AMRO-3600 (-198), Administrative Methods and Practices in Public Health

Objective: To cooperate with Governments in improving the administrative practices of national health services at all levels.

Probable duration: 1959-

Assistance provided: Advisory services by Headquarters staff; grants to supplement cost of courses; and equipment and supplies.

Work done: This project continued to serve as a coordinating element in planning, supervising, and evaluating the technical performance of the advisers and consultants in administrative methods and practices assigned to Zone I, IV, and VI; of the consultant serving the Ministry of Health and Social Welfare of the Dominican Republic; of the specialist in administration assisting the malaria eradication program of Brazil, the Dominican Republic, and the countries of Central America; and of the administrative methods officers assigned to water supply projects.

A course for intermediate level administrative personnel of health services in the English-speaking Caribbean was held in Port of Spain, Trinidad, from 14 March through 21 May. This course was jointly sponsored by the Government of Trinidad and Tobago, the University of the West Indies, and the Pan American Sanitary Bureau. The students consisted of 1 each from Antigua, Bermuda, Dominica, Grenada, St. Kitts, and St. Lucia, 2 each from Barbados and Jamaica, and 19 from Trinidad and Tobago. The objectives of the course were: to enable the individual officer to develop his personality and native capacities and at the same time develop a sense of loyalty to his Ministry and his colleagues while making him aware of the dignity and satisfaction derived from serving the public; to train intermediate level administrative staff to assume an active and major part in health programs and so improve their analytical capacity to deal with problems within their purview; to provide the students with the skills that will enable them to become instructors for the service training of personnel; and to train officers in modern techniques of supervision and administrative management and their application to the health services.

See also the -3600 projects of Chile and Peru and AMRO-0203, -2200, -2203, -3101, -3603, -3604, and -3606.

PAHO/RB

AMRO-3603 (-253), Administrative Methods and Practices in Public Health (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in improving the administrative methods and practices of the health services.

Probable duration: 1963-

Assistance provided: Consultant services by the advisers in administrative methods assigned to projects AMRO-0203, -2200, and -2203.

Work done: A Symposium on Administration was held in El Salvador and was attended by 104 persons from the countries in North, Central, and South America and the English-speaking countries in the Hemisphere.

AMRO-3604, Administrative Methods and Practices in Public Health (Zone IV)

Objective: To assist the countries in Zone IV to improve the administrative methods and practices of their respective health services.

Probable duration: 1965-

Assistance provided: 1 administrative methods adviser.

Work done: The adviser assisted the pertinent authorities of the Institute for Municipal Development in Bogotá, Colombia, in a reorganization of the personnel system.

See also Peru-3600.

PAHO/RB**AMRO-3606 (-319), Administrative Methods and Practices in Public Health (Zone VI)**

Objective: To assist the Governments of the countries in Zone VI to improve the administrative methods and practices of the respective health services.

Probable duration: 1963-

Assistance provided: 1 administrative methods adviser and 1 short-term consultant.

Work done: Technical assistance was provided to Argentina in reorganizing all the country's administrative services under one national authority within the Ministry of Public Health. The adviser continued to stimulate coordination of the administrative and planning aspects of health activities. The consultant assisted the Ministry in matters related to personnel management, especially in the establishment of a classification system. To further strengthen the personnel administration, 2 of the key personnel officials were awarded fellowships, permitting them to study personnel systems in other countries (Argentina-3103).

In Paraguay advisory services continued to be focused on the implementation of a system of program budgeting. Assistance was also provided in the organization and development of a 2-month course in which 29 persons of the Ministry of Health and Social Welfare received training in all areas of administration.

See also Chile-3600.

PAHO/RB**AMRO-4100 (-338), Maternal and Child Health**

Objective: To prepare guidelines for establishing priorities and service standards in connection with the planning of maternal and child health programs, including the carrying out of practical surveys, seminars, and related activities.

Probable duration: 1964-1967.

Assistance provided: 2 temporary advisers and 3 short-term consultants; and a limited amount of supplies.

Work done: Advisory services in maternal and child health services programs and standards were provided in Argentina, Brazil, Chile, and Mexico. A special study was made of the maternal and child health services of Panama City and the Penonomé Area.

A complete study was made of the maternal and child health programs implemented jointly with UNICEF in Colombia. A document analyzing maternal and child health programs in the Region of the Americas during the 1960-1965 period was also prepared. The latter document and the one prepared on the study in Colombia will form part of the documentation that WHO will present to the Executive Board of UNICEF in 1967.

PAHO/RB Inter-American Children's Institute, International Children's Center**AMRO-4108 (-268), Social and Clinical Pediatrics**

Objective: To organize and sponsor yearly courses in social pediatrics for teachers of pediatrics in medical schools and pediatricians in charge of child health and hospital services in Latin America.

Probable duration: 1961-

Assistance provided: Advisory services by Headquarters staff; and equipment and supplies for participating schools.

Work done: Between 1 August and 28 October, 1 course was conducted in the Department of Social Pediatrics of the School of Medicine of the University of Antioquia in Medellín, Colombia, which was attended by a total of 20 physicians from Argentina, Bolivia, Brazil, Colombia, Nicaragua, Peru, and Venezuela. An instructor provided by the International Children's Center of Paris cooperated in the course.

From 2 May to 23 July, 1 course was conducted in Santiago, Chile, for 26 students: 1 each from Brazil, Colombia, Cuba, Ecuador, Mexico, Nicaragua and Panama; 2 each from Argentina, Bolivia, Honduras, and Venezuela; 3 from Peru; and 8 from Chile. This course was held at the School of Pediatrics of the University of Chile.

PAHO/OF, WHO/RB**UNICEF****AMRO-4109 (-183), Nursing Midwifery**

Objective: To provide interested countries with advisory services for improving their maternity care services and the services of institutions for the training of midwives.

Probable duration: 1962-1967.

Assistance provided: 1 nurse midwife; and equipment and supplies.

Work done: The Ana Neri and the Bahia Schools of Nursing in Brazil received technical assistance in the development

of the midwifery aspects of the fourth year of the basic nursing education program. Advisory services in the development of maternity care, including midwifery services, were also provided to Ecuador, Paraguay, Peru, and Uruguay.

See also Argentina-4102.

PAHO/RB, PAHO/SFHP

AMRO-4112, Study Group on Pediatric Education

Objective: To convene a meeting of specialists in pediatrics education from various countries of the Americas in order to study the teaching of this subject and, wherever desirable, propose changes in the methods employed.

Place and duration: Washington, D. C.; 6-8 June 1966.

Assistance provided: Travel and per diem allowances of the Advisory Group.

Work done: The Advisory Group consisted of pediatrics instructors from the various universities of Argentina, Brazil, Colombia, Chile, Jamaica, Mexico, the United States of America, and Venezuela. Representatives of the American Academy of Pediatrics, the Children's and Human Development Institute, the U. S. Agency for International Development, the American Association of Medical Schools, and the Josiah Macy, Jr. Foundation, all of the United States of America, also took part in the deliberations.

The Group considered 3 specific aspects of pediatrics education: continuing education in pediatrics, with particular reference to university responsibility toward general physicians; the medical center hospital services in relation to learning goals in pediatrics; and use of a university health-service area as a pediatric teaching facility and its relationship to basic principles of learning.

The Group stressed the need to train pediatricians and imbue them, while undergoing training, with a broad understanding of their role in social guidance. It was felt that it was not desirable to subdivide pediatrics into its social or preventive components or to treat them separately. It expressed the view that the teaching of pediatrics provided an excellent opportunity—perhaps more so than other clinical subjects—to teach the discipline as an integrated whole, and to analyze educational activities in cooperation with other departments of the medical school.

PAHO/RB

AMRO-4200 (-165), Nutrition Advisory Services

Objective: To provide advisory services on nutrition, in order to meet specific needs.

Probable duration: 1958-

Assistance provided: 1 short-term consultant; special grants; and advisory services by Headquarters personnel.

Work done: PAHO/WHO organized, collaborated, and/or participated: in a meeting of a Technical Advisory Committee, the first of its type, called in Bogotá to advise Colombia's National Institute of Nutrition on its work (Colombia-4200); in a Conference on the Training of Nutritionists and Dietitians held in Caracas, Venezuela (AMRO-4220); in the meeting of the Advisory Committee of INCAP, held

in Guatemala (AMRO-4203); in a Conference on the Evaluation of Applied Nutrition Programs that took place in Popayán, Colombia (AMRO-4210); in a Conference on the Teaching of Nutrition in Schools of Medicine and Schools of Public Health, organized by AID in Washington, D. C.; and in the planning of nationwide surveys jointly conducted by INCAP and OIR/NIH in 4 Central American countries (Costa Rica-4200, El Salvador-4200, Honduras-4200, Nicaragua-4200, and AMRO-4203). PASB staff also participated in meetings and conversations with technical personnel of agencies involved in nutrition activities in Latin America, such as AID, FAO, OIR/NIH, UNICEF, and the Food and Nutrition Board of the National Academy of Sciences of the United States of America.

Studies were conducted on endemic goiter (Ecuador-4202, Peru-4201, and AMRO-4213) and on nutritional anemias (Trinidad and Tobago-4201 and AMRO-4212).

A nutrition text for nurses was prepared and the translation into Spanish of the comprehensive handbook on nutrition entitled *Nutrición humana* was completed; both were scheduled for publication in 1967.

Support was given to the recently created Latin American Nutrition Society (AMRO-4218); to the setting up of the Caribbean Food and Nutrition Institute, in which considerable progress was achieved (AMRO-4207); and, as in preceding years, to INCAP's work in Central America (AMRO-4203).

PAHO/RB, PAHO/SFHP, PAHO/OF, WHO/RB AID, USPHS-NIH

AMRO-4201, Nutrition Advisory Services (Zone I)

Objective: To collaborate with the countries and territories of Zone I in the study and evaluation of their nutrition problems and current needs; in planning, in close cooperation with national and international agencies, programs in nutrition education and programs to foster the production of protein-rich foods; and in integrating nutrition programs into health services at all levels.

Probable duration: 1961-

Assistance provided: 1 medical nutritionist, 1 public health nutritionist, 1 biochemist, and advisory services by Headquarters personnel; and equipment and supplies.

Work done: See projects Trinidad and Tobago-4200 and -4201, Venezuela-4200, West Indies-4200, and AMRO-4207.

PAHO/RB, WHO/RB

AMRO-4203 (-54), Institute of Nutrition of Central America and Panama

Objective: To assist in the developing program of the Institute of Nutrition of Central America and Panama for the purpose of: improving the nutrition services and programs of that area; training professional and auxiliary personnel from Central America and other countries of the Hemisphere; and conducting nutrition research dealing with ways of solving the major problems created by a lower nutrition status of a large segment of the population of the Americas.

VIII. PROJECT ACTIVITIES

Probable duration: 1949-

Assistance provided: 1 director, 4 medical officers, 1 nutrition adviser, 1 nutrition educator, 1 technical assistant, 1 administrative officer, 1 accounting technician, and 3 short-term consultants; and costs of an Advisory Committee meeting.

Work done: Comprehensive nutrition surveys similar to the one carried out in Guatemala in 1965 were made possible under a joint plan of PAHO/INCAP and the Nutrition Section of the Office of International Research, U. S. National Institutes of Health (*see* Costa Rica-4200, El Salvador-4200, Honduras-4200, and Nicaragua-4200).

Work was continued in the development of high-protein vegetable mixtures and in the improvement of locally available protein sources. Investigations were continued on the effect of the nutrition status on physical and mental growth and on the development of physical work capacity, as well as on the interrelationships between nutrition and the cultural factors responsible for food selection.

Incaparina continued to be commercially distributed in Guatemala. A new plant for the production of this food supplement was established in Panama. Feasibility and marketing studies for commercial development were carried out in other Central American countries and in Brazil.

With UNICEF fellowships, 11 professional dietitians (1 each from Bolivia, Brazil, Chile, Colombia and Haiti, and 2 each from Argentina, Panama, and Venezuela) attended the regular 11½-month course in public health; and 4 physicians from Costa Rica, El Salvador, Honduras, and Nicaragua received training in public health nutrition in a 10-week summer course. Training in basic nutrition research was also provided to biochemists and physicians.

A 4-year university degree course in nutrition and dietetics was established at the Institute and the first students, from Central America, were admitted in January.

**Governments of
Central America and
Panama, UNICEF**

PAHO/RB, PAHO/INCAP/G¹

AMRO-4204 (-262), Nutrition Advisory Services (Zone IV)

Objective: To provide advice to the countries of Zone IV on the development of nutrition programs (especially at the local health service level), on applied research related to nutrition problems, and on the training of personnel.

Probable duration: 1956-

Assistance provided: 1 medical nutritionist; and equipment and supplies.

Work done: Advisory services were provided to the 4 countries of the Zone (*see* Bolivia-4201 and -4202, Colombia-

¹ Grants received in 1966:

Inter-American Institute of Agricultural Sciences

Kellogg Foundation

Massachusetts Institute of Technology (U.S.A.)

National Institutes of Health (U.S.A.)

UNICEF

United States Army Medical Research and Development Command

Williams-Waterman Fund

4200, Ecuador-4201 and -4202, Peru-4200 and -4201, and AMRO-4215).

PAHO/RB, WHO/RB

AMRO-4206, Nutrition Advisory Services (Zone VI)

Objective: To advise the countries of Zone VI on the development of nutrition programs (especially at the local health service level), on applied research related to nutrition problems, and on the training of personnel.

Probable duration: 1966-1968.

Assistance provided: 1 medical nutritionist (later transferred to Argentina-4200).

Work done: An assessment of the needs of Chile, Paraguay, and Uruguay in terms of nutrition problems and services was initiated.

See also Argentina-4200.

PAHO/RB

AMRO-4207 (-359), Nutrition (Caribbean Area)

Objective: To establish a Caribbean Food and Nutrition Institute to serve the countries and territories of the area through advisory services, research, and personnel training.

Probable duration: 1963-1970.

Assistance provided: Advisory services by personnel of project AMRO-4201; and 1 grant.

Work done: The Caribbean Food and Nutrition Institute was officially established and a director was appointed (who will take office in early 1967). The Institute is at Kingston, Jamaica, in premises of the University of the West Indies.

Work continued on the preparation of an agreement with the FAO and of agreements with the Governments in the area.

PAHO/RB

FAO

AMRO-4210 (-288), Evaluation of Applied-Nutrition Programs

Objective: To evaluate, jointly with FAO and UNICEF, the applied-nutrition programs operating in 16 countries of the Americas.

Probable duration: 1964-

Assistance provided: 1 nutrition adviser and 1 short-term consultant; and equipment and supplies.

Work done: The evaluation guides prepared by a working group during the FAO/PASB Working Conference held in Washington, D. C., in December 1965 were distributed in April 1966 to Bolivia (-4201), Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago (all -4200), and St. Kitts and St. Lucia (West Indies-4200)—the 15 countries that had applied-nutrition projects under way. The program of the 16th country, Cuba, was in the initial stage of development. Each country evaluated its own project and

returned a copy of the completed questionnaire for analysis by PASB. A careful study of the reports provided much valuable information, such as that there was some misunderstanding of the objectives of the program or of the specific responsibilities of the country with regard to planning, execution, and evaluation. The reports also revealed deficiencies in several aspects essential for program development, as well as several problems which prevented achievement of objectives.

The information obtained was useful both to the countries and to the PASB in preparing for the joint FAO/PASB Latin American Seminar on the Planning and Evaluation of Applied-Nutrition Programs held in Popayán, Colombia, from 10 to 17 November.

After analyzing the completed questionnaires, PASB developed a revised 5-year evaluation questionnaire to use as a working document at the seminar. This document, which contained the most important criteria for evaluation, was examined critically by the representatives of the countries at the seminar. After some revision, the document was accepted as a guide for evaluating a well-planned program.

Each of the 16 countries sent to the seminar a three-fold representation—agriculture, education, and health; FAO and PASB contributed international advisers, and ILO, UNESCO, and UNICEF sent observers. The participants, divided into 4 groups, discussed the various phases of program planning, criteria for measuring change in practices, attitudes, and levels of nutrition. A report of the deliberations and of the conclusions was in preparation for publication because it was considered that the document would be useful as a guide for strengthening or reorienting existing programs or for planning new projects.

For some countries, the evaluation of their existing programs provided them with the first baselines ever available for realistic planning. Any future evaluations, therefore, should not only be able to measure the progress of the projects but also identify some of the factors or procedures responsible for change or delay.

PAHO/RB, WHO/RB

FAO, UNICEF, USPHS

AMRO-4212, Research in Nutritional Anemias

Objective: To establish and assist a reference laboratory and training center for investigators and public health personnel working in the field of nutritional anemias.

Probable duration: 1965-1967.

Assistance provided: 3 short-term consultants; and a grant.

Work done: Argentina and Brazil joined the PAHO study on nutritional anemias, developed jointly with the WHO anemias study, increasing to 8 the laboratories which, including the reference center in Venezuela, were collaborating by the end of the year. Standard forms for data processing were developed. The consultants visited 9 countries in order to verify laboratory facilities, advise on appropriate methods of hematological diagnosis, and explore opportunities for including other countries in the study.

PAHO/OF

Williams-Waterman Fund

AMRO-4213, Iodine Determinations in Endemic Goiter

Objective: To establish and assist an iodine reference laboratory and training center for investigators and public health laboratory personnel working in endemic goiter prevention.

Probable duration: 1965-1967.

Assistance provided: A grant to the Center for Iodine Determinations in Endemic Goiter (Santiago, Chile) for local costs; and equipment and supplies.

Work done: The iodine reference laboratory was set up and fully equipped to train laboratory technicians in iodine analysis methods and to carry out duplicate-sample checks for collaborating laboratories.

PAHO/OF

AMRO-4215 (-340), Training Center on Applied Nutrition (La Molina Agrarian University, Peru)

Objective: To train directive and executive-level personnel responsible for determining food production policy and for the agricultural sector of applied-nutrition programs in Latin America.

Duration: 1963-1966.

Assistance provided: Advisory services by the medical nutritionist assigned to project AMRO-4204.

Work done: 20 persons from 14 countries were trained in the first 9-month course, held in 1963. In 1966 the Organization participated in the selection of the students and in the meetings of the coordinating committee, and PASB personnel conducted 38 hours of formal classroom teaching.

At the end of 1966 the University decided to discontinue the course because of local difficulties.

FAO, UNICEF

AMRO-4218, Latin American Nutrition Society

Objective: To establish a professional society of scientists working in the field of nutrition in Latin America; and to advise the Society in the development of a journal for publication of scientific articles in this field.

Probable duration: 1965-1967.

Assistance provided: A grant for travel and part-time secretarial services.

Work done: The Society held a general assembly in Hamburg, Germany, during the VII International Congress of Nutrition. Agreement was reached with the journal *Archivos Venezolanos de Nutrición* which, now called *Archivos Latinoamericanos de Nutrición*, will be the mouthpiece of the Society. The first number of the new journal was issued in December.

PAHO/OF

Williams-Waterman Fund

AMRO-4220, Seminar for Directors of Schools of Nutrition and Dietetics

Objective: To hold a meeting for the purpose of establishing guidelines for the training of nutritionists and dietitians at a professional level in Latin American institutions.

VIII. PROJECT ACTIVITIES

Place and duration: Caracas, Venezuela; 24-30 July 1966.

Assistance provided: 3 short-term consultants and advisory services by Headquarters, Zone I Office, and AMRO-4201 personnel; travel and per diem allowances for participants; and cost of the seminar.

Work done: Prior to the meeting an extensive review was made of the need for nutrition and dietetics personnel in Latin America and of the current training programs in 19 of the 21 schools for such type of personnel, and a report was prepared and submitted to the participants, in advance of the meeting. The curricula of all the schools were examined during the seminar with respect to whether or not the training provided could produce graduates with the qualifications required for professional-level work in integrated health services, and the participants emphasized the need for strengthening the public health elements in existing schools of dietetics. Specific recommendations and guidelines for curricula were established for future application. A report of the seminar was being prepared for publication.

WHO/RB

AMRO-4300 (-273 and -355), Mental Health

Objective: To strengthen mental health programs in the countries; to cooperate in planning at the national level; to promote the improvement of welfare, prevention, and rehabilitation services; to promote a research program (particularly of an international type) and the training of technical personnel.

Probable duration: 1963-1964; 1965-

Assistance provided: 3 short-term consultants; and equipment and supplies.

Work done: A meeting was held in Washington, D. C., for the purpose of discussing aspects of the teaching of the psychological sciences in medical schools and means for improving such teaching. Subsequently, the consultants who participated in the meeting visited deans and professors in Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Panama, Paraguay, Uruguay, and Venezuela in order to discuss the various educational programs and to compile pertinent information.

PAHO/RB

AMRO-4308 (-302), Mental Health Information Center on Latin America

Objective: To prepare, in collaboration with the National Clearinghouse for Mental Health Information of the National Institute of Mental Health (United States of America), a Directory of Psychiatrists, a Directory of Mental Health Facilities and Institutions, and a Mailing List of Key Mental Health Personnel; to make a survey of mental health legislation and a survey of training programs in psychiatry and related mental health fields in medical school curricula; and to establish an agency to receive and distribute informa-

tion on mental health activities, facilitate communication between mental health workers, and stimulate scientific research in this field (all relating to Latin America).

Probable duration: 1963-

Assistance provided: 1 grant for local expenditures (1 analyst, clerical staff and, on a short-term basis, 1 translator specialized in legal material and 2 specialists in medical surveys); and advisory services by Headquarters staff.

Work done: Preparation of a provisional directory of Latin American physicians working in the field of mental health—including 3,332 psychiatrists—was completed, and basic information on 817 mental health institutions operating in Latin America was collected.

Compilation of laws and jurisprudence pertaining to the mentally ill in the 20 Latin American countries was also completed, but it was not determined whether the aforementioned laws were in effect or had expired.

The list of key personnel in the field of mental health in the Americas was brought up to date and included 207 specialists.

Basic information was received on the teaching of psychiatry and related sciences in 59 medical schools in Latin America.

The Center fulfilled many requests for information on various mental health topics.

PAHO/OF

USPHS-NIH

AMRO-4310, Study Group on Alcoholism

Objective: To determine in the field of alcoholism the techniques for epidemiological research applicable to the Latin American countries; and to establish possible bases for international research.

Place and duration: San José, Costa Rica, 15-18 June 1966.

Assistance provided: 1 short-term consultant and advisory services by Headquarters staff; travel and per diem allowances of participants and costs of the meeting of the Study Group.

Work done: The consultant visited 6 countries which are implementing research programs on alcoholism and prepared a discussion paper for the Study Group.

The Group consisted of 6 specialists from Argentina, Brazil, Chile, Costa Rica, Mexico, and Peru. Three observers from Costa Rica and 2 officers of the Pan American Sanitary Bureau also attended the meeting.

The Group discussed the following topics: evaluation of programs for prevention and treatment; morbidity studies; social and economic consequences of alcoholism; sociocultural factors; basic content of national programs; treatment, prevention, and rehabilitation techniques; and evaluation of the results of treatment.

The Group prepared a document which, should the Governments so desire it, could provide a basis for epidemiological research on the problems of alcohol and alcoholism in the countries of Latin America.

WHO/RB

AMRO-4400 (-72), Dental Health

Objective: To cooperate with the Governments in accomplishing the inclusion of dental health aspects into activities of health protection, promotion, and recuperation in the communities; and to cooperate also in strengthening both dental health services and research with a view to increasing the efficiency and performance of dental activities.

Probable duration: 1954-

Assistance provided: 2 short-term consultants and advisory services by Headquarters personnel; and equipment and supplies.

Work done: Work was begun on the preparation of a program for coordination among ministries of health, schools of dentistry, and national associations of odontology for the instituting by each country of a national program of quality control of the materials used in the dental treatments provided by public health institutions or in private dental practice; to allow proper control of the quality of local and imported dental supplies; for the establishment of current national specifications on products used in dental treatment; to allow the training of the professors and researchers needed by the country in the field of dental materials; and, lastly, for the conduct of research into new dental materials.

In Colombia, advisory services in the dental morbidity survey were continued.

Assistance was given to Jamaica in the presentation of a proposal to UNICEF for the establishment of a school to prepare dental technicians (nurses).

See also Venezuela-4400.

PAHO/RB, PAHO/SFHP**AMRO-4407 (-389), Dental Epidemiology**

Objective: To conduct epidemiological studies and research in dentistry in the Americas; to operate effectively an international center for research in dentistry, distribution of printed material on dental epidemiology, and consultation and guidance on methodology in these specialties; and to train dentists in epidemiology and research.

Probable duration: 1964-1968.

Assistance provided: Advisory services by personnel from Headquarters and from WHO (Geneva); supplies; and a grant to the Dental Health Center (San Francisco, California) of the United States Public Health Service.

Work done: The Dental Health Center continued its preparation of the manual on dental caries indices for use in the first International Course for Public Health Dentists of Latin America. To the same end the International Center of Dental Epidemiology and Research (CIEPO) of the University of São Paulo prepared translations, adaptations of manuals, and audiovisual materials. The 12 students from 7 countries who will attend this course were selected.

PASB provided technical assistance to CIEPO and publicized its activities in a brochure. CIEPO furnished advisory services to several public health agencies in Latin America.

Joint efforts were made with the Dental Health Unit of WHO (Geneva) to have the manuals being prepared by that

Unit included in the regional courses for public health dentists.

See also Venezuela-4400 and AMRO-4400.

PAHO/RB, PAHO/OF**USPHS****AMRO-4408 (-274), Salt Fluoridation**

Objective: To study the possibility of using salt as a new vehicle for fluoride in the prevention of dental caries and establish the appropriate dose.

Probable duration: 1963-1967.

Assistance provided: Advice by Headquarters personnel.

Work done: Distribution of normal salt to the control community and of fluoridated salt to the 2 communities under study was continued. Another control community is receiving fluoridated water to yield comparable information on the prevention of dental caries and on the urinary excretion of fluoride. This project is going forward in Colombia. In May, a year after the tests were begun, a dietary survey was made in which on 7 consecutive days weight readings were taken for 10% of the juvenile population of the 4 communities. Dental verification studies were begun at the end of the year.

Also, the fluoride dose being added to the salt was subjected to continuing analysis and it was found that it needed to be increased.

USPHS-NIH**AMRO-4409, Water Fluoridation**

Objective: To promote, wherever needed in Latin America, the fluoridation of public water supplies.

Probable duration: 1966-1971.

Assistance provided: Advice by personnel from Headquarters and Zone Offices.

Work done: Consultations were held with international credit agencies with a view to the promotion of water fluoridation in the Latin American countries. Meanwhile, a plan of operations for 1967 was prepared.

In Mexico, assistance was given in a round-table meeting at which the biochemical aspects of fluorine were discussed.

The preparation of specialized literature was stepped up.

KF**AMRO-4500 (-142), Health Aspects of Radiation**

Objective: To stimulate national health services to adopt international standards and procedures for radiation protection connected with the use of X rays and radioisotopes and to develop regulations for the disposal of radioactive wastes; to promote the teaching of basic health physics, radiobiology, and radiation protection in medical, dental, veterinary public health, and other professional schools; to foster the use of radioisotopes for medical diagnosis, therapy, and research; and to collaborate with interested countries in establishing sampling stations for determining radioactive contamination of air, food, and water.

VIII. PROJECT ACTIVITIES

Probable duration: 1958-

Assistance provided: 2 short-term consultants; and equipment and supplies.

Work done: The draft of the *Manual del curso básico de protección contra las radiaciones ionizantes*, translated (1964) from the USPHS training course manual *Basic Radiological Health*, was further updated to include the most recent information available. The galley proofs were prepared by the U. S. Government Printing Office and were proofread.

The U. S. Office of Civil Defense provided 15 pocket dosimeters and 1 charger for Jamaica to complete its equipment for comparing the relative effectiveness of film-badge dosimetry with pocket dosimeters under conditions of high humidity and heat, i.e., in tropical areas.

Further work was done by a short-term consultant in Chile to update and modify a research protocol, which was later submitted to the U. S. National Institutes of Health, requesting a grant to study the Biodynamics of Vitamin D in Osteomalacia utilizing radioisotope investigative techniques. At year's end the NIH had the protocol under study.

PASB cooperated with WHO headquarters (Geneva) in the implementation of a 2-week International Course on Radiological Health, held in November at the National Center for Radiological Health of the U. S. Public Health Service at Rockville, Maryland, for students from 17 countries, including 2 from Latin America.

Certain areas of the detailed guidelines prepared in 1965 for assisting the field staff in developing radiation programs of various types were updated in 1966.

Spanish-language printed material in the field of radiation distributed in Latin America included: the American College of Radiology's *A Practical Manual on the Medical and Dental Use of X Rays with Control of Radiation Hazards*, translated by the College into Spanish as *El uso de los rayos X in medicina y odontología y el control de los peligros de la radiación* [ionizante]; Scientific Publication PAHO 43, entitled *Las radiaciones ionizantes y sus efectos en la población*; "Lo que una enfermera debe saber sobre los riesgos de las radiaciones ionizantes", translated in 1965 by PASB from "What nurses should know about radiation hazards" (*International Nursing Review*, II:4); and several WHO publications. Furthermore, insofar as education is concerned, the 7 films—on Radiation; Radiation, Physician and Patient; Radiation Protection in Nuclear Medicine; Modification of Radiation Injury in Mice; Radioisotopes—their Application to Humans; Iodine 131; and Worldwide Fallout from Nuclear Weapons—which, except for the latter, PASB produced in Spanish several years ago, continued to receive wide circulation.

The Organization collaborated with the Institute of Occupational Health and Air Pollution Research, in Chile, in the development of the radiochemical laboratory aspects of the radiation control program.

In view of the need to increase physicians' comprehension of radiation physics, radiation biology, and radiation protection, a translation into Spanish was made of the USPHS 78-page *Basic Science Review*. This publication

deals with the scientific fundamentals required by the physician, i.e., mathematics, chemistry, physics, and biology. See also project AMRO-4507.

PAHO/RB, WHO/RB

USPHS

AMRO-4507 (-339), Radiation Health Protection

Objective: To assist interested Governments to establish protection against radiation hazards.

Probable duration: 1964-

Assistance provided: 1 radiation physicist; and equipment and supplies.

Work done: The radiation physicist visited the national health departments of Argentina, Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Jamaica, Panama, Uruguay, and Venezuela to advise on various aspects of radiation. Costa Rica and Guyana requested PAHO assistance to establish radiation protection programs.

The radiation physicist played a vital role in preparing a 2-week Course on Radiological Health and Protection conducted in El Salvador in September in cooperation with the PASB Environmental Sanitation Branch. This course trained 6 radiation health inspectors: 5 from El Salvador and 1 from Costa Rica.

See also project AMRO-4509.

PAHO/RB

AMRO-4509, Radiation Surveillance

Objective: To cooperate with Governments in organizing the operations of radiation surveillance programs for air and food—especially milk—in order to determine the kind and amounts of radionuclides present and thereby assess the possible health hazard, if any, to the population.

Probable duration: 1962-

Assistance provided: Equipment and supplies.

Work done: For the fifth successive year the PASB supplied health departments in the Americas desiring to participate in this program with equipment and supplies made available mainly by the Public Health Service of the United States of America.

In 1966, when Bolivia, Colombia, and Jamaica began sending samples to the PASB for analyses by the USPHS, the picture was as follows:

Country and station(s)	Air samples	Milk samples
Argentina: Buenos Aires	+	—
Bolivia: La Paz	+	—
Colombia: Bogotá	+	+
Chile: Santiago	+	+
Ecuador: Guayaquil	+	+
Jamaica: Kingston	+	—
Kingston-Mandeville-Montego Bay	—	+
Peru: Lima	+	—
Trinidad and Tobago: Port of Spain	+	—
Venezuela: Caracas	+	+

The surveillance stations are manned by local personnel; and the samples are sent through the PASB to the USPHS National Center for Radiological Health at Rockville, Mary-

land (air samples) and to the Southeastern Radiological Laboratory at Montgomery, Alabama (milk samples). After the analyses are carried out, the results are turned over to the PASB which provides the necessary administrative and reporting services to the stations.

During the previous 4 years, information on this area of work was reported in Chapter II, Promotion of Health, Specific Programs, and in Chapter V, Research.

PAHO/RB

USPHS

AMRO-4600 (-256), Industrial Hygiene

Objective: To cooperate with the Governments interest in organizing or improving the operation of national industrial hygiene services by providing technical advisory services and facilities for personnel training.

Probable duration: 1961-

Assistance provided: 1 adviser on industrial health, 1 regional adviser on air pollution control, 1 short-term consultant, and 1 secretary; and equipment and supplies for air sampling stations in 10 cities.

Work done: As part of the assistance given to the Governments in the development and strengthening of industrial hygiene services, consultant visits were made to Brazil, Costa Rica, El Salvador, Guatemala, Jamaica, and Panama.

In Brazil the health authorities of the State and Municipality of São Paulo and 8 neighboring cities appointed a commission to formulate a plan for an integrated attack on the serious air pollution problem of the state capital.

In El Salvador a short course on industrial hygiene aroused considerable interest.

PASB participated in the Latin American Symposium on Industrial Development which, sponsored by the Economic Commission for Latin America and the United Nations Industrial Development Commission, was held in Santiago, Chile. A paper on the impact of industrial development on health and the importance of improving the health of workers and the sanitary conditions of the communities in which they live was presented.

The office of the regional adviser on industrial hygiene was transferred to Lima, Peru, and strengthened by the addition of an engineer early in November.

Plans were made to hold a seminar on silicosis, under the auspices of government and industry personnel from Bolivia, Chile, Peru, and PASB, in La Paz, Bolivia, in 1967 (see AMRO-4611).

See also projects Argentina-4600, Chile-4601, Mexico-4600, and Venezuela-4600.

PAHO/RB

AMRO-4608, -4609, -4610 (-356), Manganese Poisoning and Metabolic Disorders

Objective: To coordinate research on the dynamics of the mental and neurological syndromes produced by chronic inhalation of dust containing manganese.

Probable duration: 1964-1970.

Assistance provided: 1 short-term consultant and contractual services; and equipment and supplies.

Work done: Clinical studies were carried out in Chile on 3 groups of persons: 1 group was composed of miners who had exhibited signs of manganese toxicity, those in another group were miners apparently healthy, and the third group was composed of nonexposed individuals. Further evaluations were made of the individuals' neurologic and psychologic conditions, and specimens of body fluids, hair, skin, etc., were sent to the Brookhaven National Laboratories at Upton, Long Island, N. Y., for neutron activation analysis to determine manganese content. While additional studies were also carried out in Chile to help to elucidate the uptake mechanisms involved in manganese metabolism, parallel investigations of the homeostatic mechanism which control this metal were performed also in experimental animals.

At the Brookhaven National Laboratories, manganese was shown to participate in the induction of chronic manganese poisoning and, thus far, in the therapy of Parkinsonism by means of dihydroxyphenylalanine (DOPA). In order to determine the relationship between these two diseases of the nervous system, studies were carried out (in Chile and at Brookhaven) on the metabolism of manganese. Some of the studies pertained only to the homeostasis of manganese and the mechanism thereof, but other studies had potential clinical importance *per se*. The latter category includes: (1) the demonstration of high concentrations of manganese in tissues in healthy miners and not in those suffering from chronic manganese poisoning; (2) the demonstration that manganese in the healthy miners is metabolically active and not merely a deposit of inorganic ore dust; (3) the correlation between iron and manganese absorption; (4) the slow turnover of manganese in rheumatoid arthritis which was corrected by prednisone; and (5) a contribution to the correction of a genetically induced anomaly of mice (ataxia) by adding manganese to the diet.

It was decided to continue these investigations along the following lines: (1) to pursue the biochemical basis of action and the therapeutic effect of amino acids in chronic manganese poisoning and Parkinsonism, and (2) to study the physiological basis for individual susceptibility to chronic manganese poisoning.

PAHO/OE

USPHS-NIH

AMRO-4611, Seminar on Silicosis

Objective: To hold a seminar in order to: discuss the prevalence of silicosis in miners in Bolivia, Chile, and Peru; standardize the manner of evaluating the extent of the disease; and seek measures to control the disease.

Probable duration: 1966-1967.

Assistance provided: 2 temporary advisers and consultant services by Headquarters professional staff and by the adviser on industrial health assigned to project AMRO-4600.

Work done: Because silicosis is an important occupational health hazard in the mining regions of Bolivia, Chile, and Peru, in 1966 PASB took the first steps to hold in 1967 a 10-day seminar to discuss the problem, in an effort to find measures to eliminate or at least ameliorate the incidence of the disease. A small organizing committee to plan the

VIII. PROJECT ACTIVITIES

seminar met in Santiago, Chile, in June, and developed an agenda and a working program. Six representatives from the Government of each of the 3 countries concerned and several representatives of mining industries were invited and agreed to participate in the seminar.

PAHO/RB

AMRO-4700 (-150), Food and Drug Services

Objective: To provide technical advice to the national services responsible for the control of foods, drugs, and biological products, whether of local origin or imported; and to cooperate with the countries in the improvement of those control services.

Probable duration: 1959-

Assistance provided: 5 short-term consultants and secretarial and translation services; technical publications and teaching materials.

Work done: Visits were made during June and July to Brazil, Panama, Uruguay, and Venezuela to study the possibilities of establishing an International Laboratory for the Analysis of Pharmaceutical Products and its probable site. Some of the basic factors considered in this connection were: local and foreign communications facilities of the country, availability and cost of land, proximity to universities, living conditions and costs, availability of competent personnel, and interest of the local authorities. In the discussion of the report on these studies at the XVII Pan American Sanitary Conference it was considered that such a center should be at first of national scope, but planned so as to expand it shortly thereafter into a Regional Center for International Reference.

Work was continued on the collection of current laws and regulations on drug quality control in the Americas, and on the compendium of current systems for controlling the prices and the dispensing of pharmaceutical products. Also, information was provided to all the countries in the Hemisphere on the special WHO communiqués regarding the use and prescription of drugs that are or may be dangerous to health.

Field and laboratory training was given to personnel of the food and drug control programs in Argentina, Paraguay, Peru, and Venezuela.

PAHO/RB

AMRO-4703 (-376 and -381), Food and Drug Control (Zone III)

Objective: To assist the countries of Zone III in establishing national food and drug control programs; to provide technical advisory services and facilitate personnel training; and to coordinate these activities in the regional reference laboratories of INCAP, for foodstuffs, and of the National University of Panama, for drugs.

Probable duration: 1964-

Assistance provided: 1 laboratory adviser, 3 short-term

consultants, and advisory services by Headquarters personnel and the adviser of project AMRO-0703; travel and per diem allowances for participants in a seminar; a limited amount of equipment and supplies; and technical publications.

Work done: The adviser took up his duties in August. His first step was to visit the countries on the Isthmus to study and evaluate the food inspection services and dermatological laboratories, and to make a preliminary estimate of the volume of work that would devolve upon the Division of Food Control and Analysis which, if established in INCAP, would function as a regional reference laboratory for the entire Central American Isthmus.

The Second Seminar on Food and Drug Control for Central America and Panama was held in Panama City from 9 to 14 May under the auspices of PAHO/WHO; 16 officials from the food and drug control services of the health ministries in the area participated, as did officials from Headquarters, Zone III Office, INCAP, the Institute of Hygiene of Venezuela, and observers from the University of Panama and from the food and drug industry on the Isthmus. The principal objective was to review and codify the 400 Food Health Standards (prepared in 1964 and 1965 by the Organization and approved in 1965 by the X Meeting of Ministers of Public Health of Central America and Panama) whose incorporation into the health legislation of the Central American countries was being studied by the legal departments of their Governments. The technical changes recommended by the Second Seminar and the one that preceded it (1965) were taken into consideration in the review of the draft of the Food Health Standards, which PASB is preparing for publication.

In compliance with the recommendations of the meetings of ministers of health and of the two seminars, the Organization activated the program for the training of laboratory personnel of the food and drug control programs of the countries in the area and sent personnel from El Salvador and Nicaragua for training in the administrative procedures of food registry and control under the pharmacy, drug, and food program of Panama's Department of Public Health. Heads of the Dermatology Laboratories of Honduras and Nicaragua took training courses of 3 to 6 months' duration at the University of Panama's Specialized Drug Analysis Laboratories, which operate as a Regional Reference Center. The head of the Chemical Analysis Laboratory of the Department of Health of El Salvador was sent to São Paulo, Brazil, for special training at the Adolfo Lutz Institute.

The Organization continued its assistance to the Specialized Drug Analysis Laboratories, providing them with international standards, technical publications, and testing materials for the control and analysis of drugs and other chemical products.

Pursuant to a recommendation by the Higher Public Health Council of the countries of the Isthmus, a document containing the regulations and price lists governing the medicine market in Chile, Colombia, Dominican Republic, and Venezuela was prepared and presented to the XI Meeting of Ministers of Public Health of Central America and Panama, held in Guatemala City from 24 to 26 August.

WHO/RB

**AMRO-4800 (-185), Medical Care Services
(inter-Zone)**

Objective: To assist the Governments in studies associated with aspects of planning, organization and training, and applied research in medical care services.

Probable duration: 1961-

Assistance provided: 1 adviser in hospital administration, 3 short-term consultants, secretarial services and advisory services by professional personnel from Headquarters, Zone Offices, and Country Representatives; and equipment and supplies.

Work done: In compliance with Resolutions XIX and XXIX of the XVI Meeting of the Directing Council of the Pan American Health Organization (Washington, D. C., 27 September-8 October 1965), it was directed that a preliminary survey be conducted on the resources and utilization of the medical care services provided by the ministries of health and the social security institutes. The immediate purpose of the survey was to produce a report that could serve as a working document for the Technical Discussions of the XVII Pan American Sanitary Conference, whose subject was "Means for Promoting and Making Effective the Coordination between the Services and Programs of Ministries of Health, Social Security Institutes and Others Institutions that Conduct Activities Related to Health."

The survey was conducted in Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Panama, Peru, and Venezuela, countries which had voluntarily offered to cooperate. The survey yielded information on resources and their utilization, investment costs, and the operation and coverage of the services. The ministry and the social security authority of each country selected 2 persons, who were advised by PASB officials and attended 2 meetings, one in Mexico City and the other in Lima, Peru, where they were given a general orientation on the methodology of the survey.

The preliminary results of the survey were presented to the XVII Pan American Sanitary Conference (Washington, D. C., 26 September-7 October 1966).

Documents were prepared on criteria that the IDB should take into account in its study of applications submitted by the countries for loans relating to projects for the construction of either university, general, district, or rural hospitals.

See also Barbados-4801, Honduras-4800, and Trinidad and Tobago-4800.

PAHO/RB, WHO/RB

**AMRO-4803 (-303), Medical Care Services
(Zone III)**

Objective: To collaborate with the Governments of the countries of Zone III in the integration of medical care services with the general health services and in the formulation of suitable standards for health care.

Probable duration: 1962-

Assistance provided: 1 expert in medical care and advisory services by Headquarters personnel; and a limited amount of equipment and supplies.

Work done: In Panama a feasibility study was performed on the construction of a general medical center. Work was

begun on the reorganization of the Psychiatric Hospital and the drafting of two sets of regulations and one manual on hospital procedures.

In El Salvador a functional program was drawn up for 2 district hospitals and their architectural plans were evaluated. A study was made on the feasibility of building a university hospital, for which the functional bases were established.

PAHO/RB

**AMRO-4804 (-317), Medical Care Services
(Zone IV)**

Objective: To collaborate with the Governments of the countries of Zone IV in the integration of medical care services with the general health services and in the formulation of suitable standards for health care.

Probable duration: 1963-

Assistance provided: 1 adviser in medical care and 1 secretary.

Work done: In Bolivia assistance was given in the drafting of the National Health Plan. Advisory services were rendered in the administrative reorganization of a university hospital; the terms of the hospital survey were revised in preparation to carry it out; and the activities program of the Cochabamba and Tarija Health Units was set in motion.

The salient achievement in Colombia was approval of the Decree—on the integration of the National Hospital Plan—whose purpose is to assure adequate organization and unified standards in matters of public health and social welfare. Advisory services were extended to the Public Health School at Antioquia University, in Medellín, in the organization of a teaching hospital and in relation to the courses in hospital administration, and to Valle University, in Cali, in connection with the Health Integration Plan of the Department of Valle del Cauca.

In Ecuador the adviser prepared a report on the project for the administrative reorganization of the Guayaquil University Hospital and assisted in the implementation of a medical care project under the Manabí Integrated Health Plan.

In Peru assistance was given in the drafting of the Plan for 1966-1968 of the National Health and Social Welfare Fund calling for the completion of hospital facilities and the construction of new health establishments, a study of the requirements in and the training of personnel for those establishments, and the financing of those operations. Advisory services were also provided in the preparation of the curriculum for the training of hospital personnel of the National Health Fund, in the study for the reorganization of a hospital, in the program for the architectural project of the future medical center of the School of Medicine of the University of San Marcos, to the Management of the Ica Hospital and Health Center, and in the hospital administration course conducted at the Public Health School of the Ministry of Public Health and Social Welfare.

PAHO/RB

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AMRO-4806 (-304), Medical Care Services (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the development of medical care programs, especially with regard to hospital planning and administration.

Probable duration: 1961-

Assistance provided: 1 medical care adviser; and equipment and supplies.

Work done: Work continued on the study on the feasibility and advisability of setting up a Latin American Center of Medical Administration, a project being discussed among the Government, the University of Buenos Aires, the Pan American Sanitary Bureau, and other institutions. Progress was made toward the regionalization and coordination of medical care services, and a model survey on medical care resources was drafted as a basic step toward the implementation of future hospital regionalization projects.

The adviser assigned to this project also rendered services in Brazil (-4800). See also the -4800 projects of Argentina and Chile.

PAHO/RB

AMRO-4807 (-3), Rehabilitation

Objective: To provide the countries with advisory services in the field of rehabilitation related to medical problems.

Probable duration: 1962-

Assistance provided: 1 medical officer specialized in rehabilitation.

Work done: Agreements were completed for assistance to the prothetics school in Argentina, and written consultation was maintained with Colombia, Ecuador, and Peru.

PAHO/WHO was represented at several international meetings on rehabilitation.

See also Brazil-4801 and -4802, Chile-4801, and Venezuela-4801.

PAHO/RB

AMRO-4811, Seminar on Hospital Planning

Objective: To convene an advisory group in order to study hospital planning as part of national health planning and advise the PAHO Directing Council on how the PASB can best collaborate with the countries regarding this matter.

Duration: 1965-1966.

Assistance provided: In 1965 1 short-term consultant (whose services ended in 1966) and travel expenses of 6 temporary advisers.

Work done: With a view to carrying out the provisions of Resolution XXV of the XV Meeting of the PAHO Directing Council (Washington, D.C., 1964), the consultant visited 8 countries, making a survey of the availability of hospitals and other health institutions and, on the basis of the data obtained, a document was prepared and subsequently submitted to an Advisory Committee on the Planning of Hospitals and Other Health Services, composed of 3 experts from

the Inter-American Development Bank and 6 experts from PAHO. This Committee stressed the need for building or remodeling of hospitals to be part of a national construction program designed to improve community medical care services. The Committee also pointed out that, before initiating any program of new construction, the existing installed capacity should be fully utilized. The building program should be adjusted to the country's financial capacity and to the prospects of making available the essential manpower. In obtaining financing, the national resources of all institutions in the public sector should be mobilized, and international credit should be used only as a supplement. These recommendations of the Advisory Committee were ratified by the XVI Meeting of the Directing Council in its Resolution XXXVII and incorporated in the working plans of PASB.

PAHO/RB

AMRO-6100 (-16), Schools of Public Health

Objective: To cooperate with schools of public health in the Hemisphere, especially the newer ones, in order to strengthen and improve their organization, administration, and teaching.

Probable duration: 1953-

Assistance provided: Advisory services by Headquarters and Zone Offices professional personnel; reference books and subscriptions to technical journals; and equipment and supplies.

Work done: A program was initiated for the evaluation of the library services of the schools of public health, to which educational materials were supplied, including filmstrips on aspects of professional education.

Reference books and subscriptions to journals on health administration, vital statistics, epidemiology, preventive medicine and health education were sent to the schools of public health at Belo Horizonte and Rio de Janeiro (Brazil), Mexico and Lima (Peru) and also to those which function in the Central University of Venezuela and at the Universities of Antioquia (Colombia), Chile, and São Paulo (Brazil).

WHO/RB

AMRO-6107 (-152), Seminars on Schools of Public Health

Objective: To convene biennial conferences of deans of schools of public health of Latin America in order to discuss common problems and review specialized fields of teaching.

Probable duration: 1957-

Assistance provided: Advisory services by Headquarters professional personnel.

Work done: Preliminary work was done for the organization of the 1967 seminar, which will discuss the teaching of public health subjects in schools of public health.

AMRO-6108, Seminar on the Integration of the Teaching of Public Health and Preventive Medicine

Objective: To convene a seminar to study the best means of introducing a system for coordinating the departments of preventive medicine and social medicine in the various schools of a university, in order to make better use of the human and material resources available.

Place and duration: Rio de Janeiro, Brazil, 21-25 November 1966.

Assistance provided: 7 temporary advisers; travel and per diem allowances; and cost of the seminar.

Work done: The participants in the seminar reviewed the teaching of preventive and social medicine. The Final Report of the meeting contains suggestions for the systematic interchange of teaching personnel and equipment between institutions responsible for teaching both subjects. Six experts were present: from Brazil (2), Chile, Colombia, Guatemala, and Peru.

PAHO/RB

AMRO-6110, Continued Education in Public Health

Objective: To improve the training of personnel engaged in public health administration through courses of continued education.

Probable duration: 1966-1968.

Assistance provided: 1 physician and 1 secretary.

Work done: A study was begun on the personnel resources and requirements of the countries, in order to determine the extent of the contribution that would be needed in terms of international consultant services.

PAHO/RB

AMRO-6111, Training of Auxiliary Personnel

Objective: To conduct a study which will serve as the basis for discussion at a meeting of national authorities and international experts, as a first step towards the formulation of a policy for the training and utilization of auxiliary workers consistent with the needs of the countries of the Americas.

Duration: 1965-1966.

Assistance provided: 1 short-term consultant in 1965 and another in 1966; and travel and per diem allowances for the participants in the Study Group.

Work done: In compliance with the terms of Resolution XXIX, adopted at the XV Meeting of the Directing Council of PAHO (Mexico City, 31 August-11 September 1964), in 1965 a questionnaire was sent to official agencies of the countries, requesting data on the auxiliary personnel engaged in public health. The consultant visited El Salvador, Mexico, Peru, and Venezuela to gather information on the matter. On the basis of this study a document was prepared setting forth the basic concepts underlying the training of auxiliary health workers and their employment. This document was submitted to the XVI Meeting of the Directing Council (Washington, D.C., 27 September-8 October 1965),

and was used as the basis for discussion by the Study Group that met in Mexico, D.F., from 27 March to 1 April 1966. The Group was composed of 7 experts from Argentina, Brazil, Chile, Mexico, Panama, Peru, and Venezuela. The Final Report of the Study Group, which included its recommendations, was presented to the 54th Meeting of the Executive Committee (Washington, D.C., 18-22 April) and, in conformity with Resolution XIII of the Committee, to the XVII Pan American Sanitary Conference (26 September-7 October).

PAHO/RB

AMRO-6200 (-18), Medical Education (inter-Zone)

Objective: To cooperate with the Governments in their efforts to improve the teaching programs in medical education in their countries, with special reference to preventive and social medicine, basic sciences, and medical pedagogy.

Probable duration: 1953-

Assistance provided: 5 short-term consultants, advisory services by Headquarters personnel, and clerical services; and teaching materials.

Work done: The first number of *Educación Médica y Salud*, a medical education quarterly, was issued in September. The issue contained 6 articles—5 by professors of medical schools of Chile, Colombia, United States of America, and Venezuela, and 1 by an international nurse-educator. Copies were sent to the heads of schools of medicine, public health, nursing, dentistry, and veterinary medicine, as well as to health authorities and national libraries in the Americas.

A consultant was appointed to assist in the preparation of a proposed project aimed to improve the medical education program in Haiti.

The Organization participated in the III World Conference on Medical Education, held in New Delhi, India, from 21 to 25 November.

The XVIII Meeting of the Medical Education Information Center (MEIC), held in New York City from 26 to 27 May under the auspices of the Milbank Memorial Fund, was attended by 34 participants from 27 private, governmental, and international agencies that provide technical and financial support to medical education in Latin America. The Josiah Macy, Jr. Foundation, the Commonwealth Fund, the American Academy of Pediatrics, and the Bureau of Educational and Cultural Affairs of the Department of State of the United States of America joined the MEIC Annual Meeting for the first time. In conjunction with this Meeting a Summary of Activities in International Cooperation in Medical Education in Latin America during 1965 and a *Directory of Schools of Medicine in Latin America, 1966*, were prepared and distributed.

See also project Mexico-6200.

PAHO/RB, PAHO/SFHP, WHO/RB

AMRO-6203 (-237), Medical Education (Zone III)

Objective: To strengthen the teaching programs in medical education in the countries in Zone III, by incorpo-

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rating concepts of preventive and social medicine in the curricula and by improving the training of medical school teachers and researchers in basic sciences and the pedagogical approach to the teaching of medicine.

Probable duration: 1960-

Assistance provided: 1 short-term consultant.

Work done: See project Honduras-6200.

PAHO/RB

AMRO-6204, Medical Education (Zone IV)

Objective: To cooperate with the Governments of the countries in Zone IV in their efforts to improve the teaching programs in medical education in their countries, with special reference to preventive and social medicine and medical pedagogy.

Probable duration: 1966-

Assistance provided: 3 short-term consultants.

Work done: See projects Colombia-6201 and Peru-6200.

PAHO/RB

AMRO-6207 (-101), Training of Medical Librarians

Objective: To prepare librarians for service in medical and public health school libraries and for other biomedical institutions.

Probable duration: 1962-

Assistance provided: 7 fellowships for librarians from medical or public health schools in Argentina, Brazil, Ecuador, Nicaragua, Panama, Peru, and Uruguay were awarded under health projects of the country of origin of the recipients.

Work done: The fellows attended the course for medical librarians offered in the School of Library Science of the University of Antioquia, in Medellín, Colombia.

AMRO-6208 (-247), Teaching of Statistics in Medical Schools

Objective: To collaborate with interested Governments in the development of medical statistics courses in schools of medicine.

Probable duration: 1961-

Assistance provided: 1 short-term consultant.

Work done: A 4-week series of lectures on general experimental design was offered at the University of Chile to 50 research workers from the Schools of Medicine, Dentistry, Veterinary Medicine, Pharmacy, and the Institute of Microbiology. In addition, a series of seminars on various aspects of advanced statistics was conducted at the Department of Statistics of the School of Public Health.

A 1-week series of lectures on bioassay was presented to the faculty of the Cayetano Heredia School of Medicine of the Peruvian University of Medical Sciences, in Lima, Peru. In addition to statisticians, the groups of attendants included pharmacologists, physiologists, and biochemists, all of which expressed interest in attending courses in experimental design and methodology.

PAHO/RB

AMRO-6210 (-374), Teaching Methods and Administrative Organization of Medical Schools

Objective: To strengthen medical education through a better pedagogical approach to the teaching of medicine.

Probable duration: 1964-

Assistance provided: 1 specialist in medical pedagogy and 4 short-term consultants.

Work done: Plans were made to hold Laboratory-Courses of Human Relations and Medical Teaching at the medical schools of Argentina, Honduras, Mexico, Uruguay, and Venezuela. Efforts were made to establish a directory of national leaders who will organize these courses independently on a national or regional basis.

Advisory services on medical teaching were provided through field visits to 4 medical schools in Argentina, 4 in Brazil, 3 in Mexico, and 1 each in Colombia, Honduras, Panama, Peru, Uruguay, and Venezuela.

See also the -6200 projects of Costa Rica, Mexico, Peru, and Uruguay.

WHO/RB

AMRO-6213, Institutions for Training in Health Sciences Research

Objective: To establish in Latin America institutions for the training of health-sciences research workers.

Probable duration: 1964-

Assistance provided: 3 short-term consultants; and two 12-month fellowships for Brazilian professors to study the teaching of public health (demography), in the United States of America.

Work done: The most important activity under this project was the strengthening of the course on health and population dynamics that is offered at the School of Public Health of Santiago, Chile (AMRO-6700).

In addition to advising in the course in Chile, the consultants assisted in the preparation of the curriculum of the Center for Health and Population Dynamics in the School of Hygiene and Public Health of the University of São Paulo (Brasil-6700). This Center will develop courses similar to those evolved on the subject by the School of Public Health of Santiago, Chile (AMRO-6700).

PAHO/OF

AID

AMRO-6214, Faculty Training for Medical Schools

Objective: To plan faculty-training centers for Latin American medical schools.

Probable duration: 1964-

Assistance provided: Advisory services by Headquarters personnel.

Work done: See projects Colombia-6201 and Mexico-6200.

AMRO-6216, Preventive Medicine Education

Objective: To carry out an assessment of the preventive medicine and community health-teaching programs in the medical schools in Latin America.

Probable duration: 1965-1967.

Assistance provided: 2 medical officers, 1 short-term consultant, and 1 secretary; and costs for local personnel.

Work done: Interviews were held with some 150 key professors, deans, and directors of 15 medical schools in Brazil, Chile, Ecuador, Honduras, and Venezuela. The questionnaire (designed in 1965) for the study was pre-tested at the same time. The data thus gathered were being processed for study by an *ad hoc* Advisory Committee in 1967.

PAHO/RB, PAHO/OF Milbank Memorial Fund

AMRO-6300 (-63), Nursing Education

Objective: To provide advisory services in specialized areas of nursing education; to improve the teaching of nursing by providing opportunities for selected members of nursing faculties to make observation visits; and to furnish nursing texts in Spanish to schools of nursing in Latin America.

Probable duration: 1958-

Assistance provided: 1 short-term consultant; and equipment and supplies.

Work done: The consultant spent 1 month in Mexico City evaluating the findings of the field tests of the programmed instruction unit on vaccination given to 150 nursing auxiliaries.

The literature distributed during the year included the *Report on the Survey of Schools of Nursing in the Caribbean Area* (PAHO Reports on Nursing, No. 6) and the following reports: 2 on the Educational Program for Graduate Nurses in Guyana, 1 on the Training of Auxiliary Nursing Personnel, and 1 on the Training and Utilization of Auxiliary Health Workers in Latin America. The *Directory of Schools of Nursing in Latin America* was brought up to date and was also distributed.

WHO/RB

AMRO-6301 (WEST INDIES-12), Nursing Education (Zone I)

Objective: To assess the nursing resources in the countries and territories of the Caribbean; and to carry out a long-term plan for the improvement of nursing education.

Probable duration: 1963-1967.

Assistance provided: 1 nurse educator and consultant services by the nurses assigned to projects AMRO-3201 and -3207; and printing costs.

Work done: The report of the 1964-1965 Survey of Schools of Nursing in the Caribbean Area (PAHO Reports on Nursing, No. 6) and the 1966 Nursing Education Seminar (AMRO-6312) held in the University of the West Indies intensified interest in nursing education. Followup visits were made to Antigua, Bahamas, Barbados, British Honduras, Dominica, Guyana, Jamaica, Montserrat, St. Kitt-Nevis-Anguilla, St. Lucia, St. Vincent, and Trinidad and Tobago, all of which had participated in the survey. The discussions held with the pertinent authorities dealt with

the respective nursing school's strong points and those requiring improvement; relevant recommendations were also made at the time.

In every country or territory it was found that some action had been taken since the survey of schools and that plans were under way, in varying degrees of development, for further action. Highlights of the findings follow. In Antigua the school staff acquired a tutor (nurse) who was prepared for teaching, and plans had been made for renovations and extensions to the school building. A completely renovated and equipped practical demonstration room was added to the school in the Bahamas where, in addition, 2 seminars were held: in relation to continuity of care and on newer trends in nursing care. Preventive and curative service personnel in Dominica held joint meetings during the year. Guyana initiated plans for a project to prepare mid-level personnel for leadership responsibilities in both education and nursing care, and during the summer held the country's first workshop emphasizing public health nursing and medical and surgical nursing care. In Montserrat a health education seminar sponsored jointly by the Government, the Extra Mural Department of the West Indies and PAHO/WHO provided nurses with an opportunity for some additional training. Active efforts were being made by St. Kitts-Nevis-Anguilla to recruit either a prepared tutor or one to whom preparation may be given with the ultimate purpose of establishing a school of nursing to serve the 3 islands. In St. Lucia a new Nurses' Registration Bill was enacted, and the Government requested assistance from PAHO/WHO in carrying out a study of nursing needs and resources in order to be able to formulate plans for the future. St. Vincent reactivated its General Nursing Council; and, under the leadership of a tutor who returned from abroad after receiving postbasic preparation, was endeavoring to recruit students with a better basic educational standard. In Trinidad and Tobago an extensive study of nursing needs in terms of resources was carried out, with technical assistance from PAHO/WHO, as part of an overall plan for a reorganization of the Ministry of Health; a nursing education committee, which includes nursing service personnel and representatives of all the branches of nursing, was set up; and there was considerable reorganization within the clinical field of the major hospital and the school of nursing attached to it.

See also the -6300 projects of Barbados, British Honduras, and Jamaica.

PAHO/RB

AMRO-6310, Programed Instruction for Nursing Auxiliaries

Objective: To develop programed instruction courses for nursing auxiliaries in order to train the exceedingly large numbers of untrained personnel currently working in health services in Latin America.

Probable duration: 1965-1969.

Assistance provided: 1 nurse educator, 1 secretary, and advisory services by the nurses assigned to projects Honduras-6300 and Mexico-6300.

Work done: Two other units in programed instruction

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were translated from English into Spanish, namely, Introduction to Asepsis and Aids to Diagnosis.

Eleven nurse educators began to develop short lessons in programed instruction, beginning with the analysis of tasks through field testing, but it was too early in the process to make a progress report.

The first course on programed instruction (AMRO-6313) was held in Mexico (*see also* AMRO-6300).

PAHO/RB, PAHO/SFHP

AMRO-6312, Seminars on Nursing Education (Zone I)

Objective: To develop nursing education in terms of the needs of the area, in order to improve nursing services.

Probable duration: 1966-

Assistance provided: 1 short-term consultant, and advisory services by the nurses assigned to projects Barbados-6300, Trinidad and Tobago-3200, and AMRO-3201 and -6300; cost of the seminar; and travel and per diem allowances of the participants.

Work done: At the invitation of the Government of Jamaica, and with collaboration from the Pan American Sanitary Bureau, a Seminar on Nursing Education was held from 23 August to 2 September at the University of the West Indies. This seminar was a direct outcome of a recommendation made by a previous nursing education seminar (Antigua, 1965).

The Ministry of Health provided administrative and secretarial services, equipment and office supplies.

Nineteen nurses charged with major responsibility for teaching programs in schools of nursing in 12 countries and territories in the Caribbean attended and PAHO/WHO nurse advisers served as staff. The group formulated basic-nursing guidelines for an educational program suitable to prepare professional nurses in the Caribbean to give comprehensive and adequate nursing care.

PAHO/RB

AMRO-6313, Courses on Programed Instruction

Objective: To prepare nurses in planning and developing units of programed instruction so that large numbers of auxiliary personnel may be trained with a minimum of instructors.

Probable duration: 1966-

Assistance provided: 3 short-term consultants and advisory services by the nurse educator assigned to project AMRO-6310; and course and printing costs.

Work done: The first course in the Use of Programed Instruction Materials for Instruction of Auxiliary Nursing Personnel was held in Cuernavaca, Mexico, in October, for 25 nurses from Cuba, Dominican Republic, El Salvador, Guatemala, and Mexico. A PAHO/WHO nurse adviser with duty station in Honduras also attended the course. The teaching staff included 1 nurse educator from Mexico.

This course, on Introduction to Immunization, was geared so that upon completion of the 8 lessons the student should be able to: discriminate which programed instruction units

would be useful and appropriate in a training program for nursing auxiliaries in her home country; explain the reinforcement theory of learning and the steps necessary to prepare a training program for nursing auxiliary personnel; prepare an outline for the teaching of a specific task in a training program for nursing auxiliaries; and, adapt, through changes in words, etc., a programed instruction unit to home-country idiosyncrasies.

One fourth of the 6-week course was devoted to theory and three fourths to the actual planning of lessons. Four of the 8 lessons planned were tested. However, developmental and field testing of the unit (adapted and translated into Spanish) was not as favorable as desired and it was realized that it would require additional editing and adapting before further use of it can be made.

PAHO/RB, PAHO/SFHP

AMRO-6400 (-1), Sanitary Engineering Education

Objective: To cooperate with the Governments in expanding teaching institutions, revising the pertinent curricula, and promoting training and research activities in sanitary engineering.

Probable duration: 1952-1958; 1964-

Assistance provided: 1 sanitary engineer, 3 short-term consultants, 1 secretary and advisory services by staff of Headquarters, of the Zone Offices and of AMRO-2100, -2104 and -2107 projects; and equipment and supplies.

Work done: This project coordinated the sanitary engineering educational and research activities at the country level.

The training program continued to expand both in number of courses and diversification of subjects. Sixty courses, 6 seminars and 1 symposium were held (*see* Chapter III, Education and Training).

The average duration of each course was of 2 weeks, and the participants numbered 1,831. The main subjects were those related to the supply and treatment of water for consumption, especially the design of systems for small communities; the development of river basins and ground water; water quality; treatment plants; financing and administration; and the collection and treatment of sewage. Courses were also held on other subjects, including housing, solid refuse, programing methods, electronic computers, protection against radiation, industrial hygiene and safety, and training of sanitation inspectors.

For each type of course, seminar and symposium, a technical manual was prepared and distributed to students and interested institutions. Two manuals were printed in book format.

Research activities in sanitary engineering were initiated in Brazil, Mexico, and Peru. On the basis of a contract with the Battelle Memorial Institute (Washington, D.C., U.S.A.) information was compiled and assembled on the research facilities available in selected university institutions.

A training program in techniques of water fluoridation was prepared for sanitary engineers. The 4-year program will consist of the following courses: 1 at the international level, 2 at the inter-Zone level and 20 at the national level.

The Inter-American Development Bank and the Pan American Health Organization signed an agreement to provide assistance in the field of sanitary engineering, under the terms of which IDB will contribute funds and PAHO provide technical services through its operational network and by means of a series of agreements with universities in the Americas.

An agreement was also concluded with the Extramural Department of the University of the West Indies in Jamaica. See also the -6400 projects of Cuba, Mexico, and Uruguay and -6401 of Brazil.

PAHO/RB, PAHO/SFHP

AMRO-6403 (-360), Sanitary Engineering Education (Zone III)

Objective: To expand and improve the teaching of sanitary engineering at engineering schools and universities in the countries of Zone III.

Probable duration: 1965-

Assistance provided: 3 short-term consultants; supplies and equipment.

Work done: See the -6400 projects of Honduras, Nicaragua, and Panama.

PAHO/RB

AMRO-6500, Veterinary Medicine Education

Objective: To cooperate with the university authorities of the interested countries in strengthening the teaching of veterinary medicine, giving special emphasis to preventive medicine and public health.

Probable duration: 1966-

Assistance provided: 4 short-term consultants and advisory services by Headquarters personnel; and a limited amount of supplies.

Work done: In accordance with the recommendations of the PAHO/WHO Advisory Committee on the Teaching of Veterinary Medicine, a survey was made of the schools of veterinary medicine in Latin America with the view to bringing up to date the comparative guide on professional training in veterinary medicine. The necessary preparations were made for the Conference on the Training of Teachers of Public Health and Preventive Medicine of Schools of Veterinary Medicine in Latin America, which will be held in March 1967 at Lima, Peru.

Under the auspices of the Government of Venezuela, FAO, and PAHO/WHO the First Latin American Meeting on Veterinary Medicine Education was held at Maracay, Venezuela, from 26 to 30 September. The meeting was attended by 44 deans of schools of veterinary medicine in Latin America and in the United States of America, 7 PAHO/WHO consultants and 1 representative of the Pan American Zoonoses Center. The principal subjects discussed were: curricula, teaching profession, and training of students of veterinary medicine.

In collaboration with the Pan American Centers for Zoonoses and Foot-and-Mouth Disease, the Organization provided biologicals for diagnostic research and educational

purposes to the schools of veterinary medicine in Brazil, Chile, Colombia, Guatemala, and Peru.

WHO/RB

AMRO-6600 (-284), Dental Education

Objective: To assist university authorities of interested countries in improving teaching in the schools of dentistry.

Probable duration: 1963-

Assistance provided: 1 short-term consultant and advisory services by Headquarters personnel; and equipment and supplies.

Work done: In Peru PAHO/WHO assisted the University of San Marcos in the organization of the Chair of Preventive and Social Dentistry. Technical assistance was provided to the University of Ica in the revision of its plans for the new building of the School of Dentistry and in conducting a Seminar on Dental Education.

The consultant made a study of various dental schools in Europe and the United States in order to prepare a technical paper on curricula for the dental schools of Latin America.

See also Brazil-6600 and -6601; the -6600 projects of Chile, Dominican Republic, El Salvador, Nicaragua, Panama, and Venezuela; and AMRO-6607, -6608, and -6609.

PAHO/RB, WHO/RB University of Antioquia (Colombia)

AMRO-6607 (-257), Seminars on Dental Education

Objective: To examine the current state of dental teaching; and to discuss existing problems and formulate recommendations for their solution.

Probable duration: 1962-1967.

Assistance provided: 3 short-term consultants and advisory services by personnel of Headquarters and Zone V and VI Offices, and by the Head of the Dental Health Unit of WHO (Geneva); costs of the Third Seminar, including interpreters, secretaries, translators (Spanish, English and Portuguese), and interpretation and reproduction equipment; and distribution of specialized literature.

Work done: In preparation for the Third Latin American Seminar on Dental Education a survey was made of the 47 dental schools in Argentina, Brazil, Paraguay, and Uruguay. Two questionnaires (1 for the survey and 1 to evaluate the seminar) similar to those used in the first 2 seminars and a Spanish-language instruction manual on how to answer the survey questionnaire were prepared. Of the 47 questionnaires sent out to the schools, 39 were returned and the information they contained was used to prepare a document which was distributed and used as a reference work in the sessions of the Third Seminar.

The Third Latin American Seminar on Dental Education was held from 27 November to 2 December in Petrópolis, in the State of Rio de Janeiro, Brazil. The following topics were discussed: Library development and ways to increase the use of dental literature; auxiliary personnel training in dental schools; education following graduation from the dental school; and the role of research in dental schools.

VIII. PROJECT ACTIVITIES

The seminar was attended by 50 participants: 10 from Argentina, 1 from Bolivia, 35 from Brazil, 2 from Paraguay, and 2 from Uruguay; and by 120 observers from other countries in the Hemisphere.

PAHO/RB, PAHO/OF

KF

AMRO-6608 (-390), Training of Auxiliary Dental Personnel

Objective: To promote the training and utilization of various types of auxiliary personnel so that the application of preventive and restorative dental measures may be extended to an increasing number of the population and thus increase the productivity of the dentist, consequently reducing dental costs.

Probable duration: 1965-

Assistance provided: 1 short-term consultant and advisory services by Headquarters personnel; equipment and supplies; and common services.

Work done: Assistance was provided in Jamaica in the preparation of a draft tripartite plan of operations for the establishment of a school for auxiliary dental personnel. If established, this school would train personnel to perform intraoral operations (amalgam fillings and extractions) in schoolchildren and would be the first school of this type to be organized in Latin America.

The consultant wrote a report on the use of auxiliary personnel in the United States of America and England, and its translation into Spanish was begun.

Literature on the use of auxiliary personnel elsewhere in the world was distributed in Latin America. Several technical papers were translated into Spanish and distributed to the Schools of Dentistry and Ministries of Health.

Copies of a series of transparencies showing the use of auxiliary personnel by dentists were distributed to 20 schools of dentistry in Latin America.

PAHO/RB

AMRO-6609, Latin American Association of Dental Schools

Objective: To establish a central office for the permanent secretariat of the Latin American Association of Dental Schools (ALAFD); and to promote the teaching of dentistry and research in order to improve the dental health of the people.

Probable duration: 1965-1968.

Assistance provided: Advisory services by Headquarters personnel; and equipment and personnel for simultaneous interpretation, secretarial services, and document reproduction for a meeting and a course.

Work done: The Government of Brazil, the Kellogg Foundation, and the Pan American Sanitary Bureau collaborated with the Latin American Association of Dental Schools (ALAFD) in the conduct of 1 Course on the Teaching of Dentistry, held jointly with the Third Congress of that Association, from 2 to 7 December in Petrópolis, State of Rio de Janeiro, Brazil. The course was attended

by more than 100 professors and deans of dental schools in 20 countries.

PAHO/RB

American Dental Association

AMRO-6700 (-10), Biostatistics Education and Population Dynamics

Objective: To improve vital and health statistics in the countries of the Hemisphere by training technical and professional personnel in specialized centers.

Probable duration: 1952-

Assistance provided: 1 short-term consultant and advisory services by the short-term consultants assigned to project AMRO-6709 and by other advisers assigned to other projects related to statistics; a grant to the School of Public Health of the University of Chile; equipment and supplies; and the following fellowships:

Awards	Place of origin	Field of study	Place of study	Months
1	Argentina	Health statistics (demography)	United States of America	12
1	Honduras	Health statistics	Brazil	11
1	Nicaragua	Ditto	Chile	15
1	Panama	Ditto	Mexico	10½

Work done: 15 students completed the course for professional health statisticians conducted by the School of Public Health of Chile. A 4-month course on health and population dynamics was presented to 25 persons, from 11 countries, who were either professors of preventive medicine in Latin American medical schools or statisticians who will be involved in research and teaching. Two consultants visited the School of Public Health and advised on the preparation of the course, and 3 others functioned as visiting professors and presented selected topics to the students.

See also project Brazil-6700.

WHO/RB, WHO/UN-TA

AMRO-6707 (-85), Latin American Center for the Classification of Diseases

Objective: To study problems related to medical certification of causes of death; to give instruction on classification of causes of death, in accordance with the *International Classification of Diseases*; and to collaborate in the preparation of the decennial revisions of the *Classification*.

Probable duration: 1955-

Assistance provided: 1 statistician; a grant; and funds for publishing in Portuguese Volume II of the Seventh Revision of the *International Classification of Diseases*.

Work done: Staff of the Latin American Center for the Classification of Diseases provided instruction on the use of the *International Classification of Diseases* to about 40 persons in Buenos Aires and Santa Fe, Argentina, and to the 27 students in the course for intermediate level statistical personnel held in Kingston, Jamaica. The Center supplied schools of public health in Latin America with teaching

materials for courses to train intermediate level and auxiliary level statistical personnel.

Volume II of the *International Classification of Diseases* was translated into Portuguese and 5,000 copies were printed.

Drafts of the tabular list of inclusions were prepared in Spanish, and lists of categories were in preparation, in both Spanish and Portuguese, for preliminary distribution in the Region in preparation for the Eighth Revision of the *International Classification of Diseases*.

WHO/RB

AMRO-6708 (-156), Training Program in Hospital Statistics

Objective: To provide training to personnel working on medical records and hospital statistics, in order to develop essential data for planning for health and medical services.

Probable duration: 1961-

Assistance provided: 1 hospital statistician, 3 medical records librarians, 3 short-term consultants, and 1 secretary; books; and teaching materials.

Work done: The Ministry of Public Health of Costa Rica conducted a 4-month course at the intermediate level. The 14 students thus trained in the keeping of medical records included 1 each from El Salvador, Nicaragua, and Panama. The Pan American Sanitary Bureau assisted in the development of the course.

The course for statistical technicians conducted by the School of Public Health of Peru was extended for 2 months, in order to furnish the 19 students enrolled in the course with preparation to direct hospital medical records departments. The Organization provided advice and teaching assistance for this portion of the course.

Assistance in developing plans for medical records training programs at the intermediate level was given in Brazil and Colombia, and in Mexico for training programs at the auxiliary level. Chile's Ministry of Public Health received assistance in the development of plans for the installation of a computer. A short-term consultant advised Haiti on the organization of the medical records department of the Port-au-Prince General Hospital. Teaching assistance was provided in the health statistics course conducted in Jamaica. The Ministry of Health and Social Welfare of Venezuela received advisory services in the mechanized processing of hospital statistics.

A survey was made of the use of computers in the health field in Latin America; assistance was provided in the survey of the coordination of medical care services conducted in Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Panama, Peru, and Venezuela; and a program providing for the translation of selected medical records articles and their distribution through a mimeographed series was initiated.

See also project Argentina-6700.

PAHO/RB, PAHO/SFHP, PAHO/OF KF, USPHS

AMRO-6709, Research Training Programs in Health and Population Dynamics

Objective: To plan and carry out research training programs in population dynamics and its interrelationship to public health and medical care in Latin America.

Probable duration: 1966-1968.

Assistance provided: 3 short-term consultants and 1 clerk; simultaneous translation equipment and other equipment and supplies; and the following fellowships:

Awards	Place of origin	Field of study	Place of study	Months
1	Argentina	Medical pedagogy (demography)	Chile	4½
1	Brazil	Ditto	Ditto	4½
4	Colombia	Ditto	Ditto	4½
1	Ecuador	Ditto	Ditto	4½
1	El Salvador	Ditto	Ditto	4½
1	Mexico	Ditto	Ditto	4½
1	Nicaragua	Ditto	Ditto	4½
1	Venezuela	Ditto	Ditto	4½

Work done: As part of the program of the Office of Health and Population Dynamics at Headquarters, preparations were begun for the Third Conference on Health and Population, scheduled for February 1967.

See also projects Brazil-6700 and AMRO-6700.

PAHO/OF

AID

INTER-REGIONAL-113, Training Course on Epidemiology and Control of Tuberculosis

Awards	Place of origin	Place of study	Months
1	Brazil	Italy, Tunisia	3½
1	Costa Rica	Ditto	3½
1	Uruguay	Ditto	3½

WHO/UN-TA

INTER-REGIONAL-120, Anesthesiology Training Course

Awards	Place of origin	Place of study	Months
1	Mexico	Denmark	11

WHO/UN-TA

INTER-REGIONAL-140, Training Course on Abattoir Management

Awards	Place of origin	Place of study	Months
1	St. Vincent	Denmark	1½

WHO (Geneva)

INTER-REGIONAL-198, Traveling Seminar on Organization of Epidemiological Services and their Role in Control of Communicable Diseases

Awards	Place of origin	Place of study	Months
1	Chile	Soviet Union	¾
1	Cuba	Ditto	¾
1	Mexico	Ditto	¾

WHO/UN-TA

VIII. PROJECT ACTIVITIES

INTER-REGIONAL-205, Traveling Seminar on Nursing

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Chile	Soviet Union	1
1	Costa Rica	Ditto	1
1	Uruguay	Ditto	1
1	Venezuela	Ditto	1

WHO/UN-TA

INTER-REGIONAL-239, Medical Education (Genetics)

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Costa Rica	Denmark	3
2	El Salvador	Ditto	2 $\frac{3}{4}$
1	Jamaica	Ditto	2 $\frac{3}{4}$

WHO/UN-TA

INTER-REGIONAL-285, Rehabilitation (Physiotherapy)

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Argentina	Denmark	3

WHO/UN-TA

INTER-REGIONAL-289, Child Dental Health

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Argentina	Denmark	3
1	Costa Rica	Ditto	3
1	Venezuela	Ditto	3

WHO/UN-TA

INTER-REGIONAL-290, Helminthic Diseases

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Costa Rica	Soviet Union	$\frac{3}{4}$
1	Mexico	Ditto	$\frac{3}{4}$
1	Venezuela	Ditto	$\frac{3}{4}$

WHO (Geneva)

INTER-REGIONAL-296, Traveling Seminar on Preparation of Teachers for Medical Schools

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Argentina	Soviet Union	$\frac{3}{4}$
1	Brazil	Ditto	$\frac{3}{4}$
1	Jamaica	Ditto	$\frac{3}{4}$
1	Mexico	Ditto	$\frac{3}{4}$
1	Venezuela	Ditto	$\frac{3}{4}$

WHO/UN-TA

INTER-REGIONAL-298, Traveling Seminar on Community Water Supply

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Argentina	Soviet Union	$\frac{3}{4}$
1	Mexico	Ditto	$\frac{3}{4}$
1	Venezuela	Ditto	$\frac{3}{4}$

WHO/UN-TA

INTER-REGIONAL-311, Training Course on Radiological Health Inspection

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Ecuador	United States of America	$\frac{1}{2}$
1	Mexico	Ditto	$\frac{1}{2}$

WHO/RB

INTER-REGIONAL-316, Nursing Services

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Costa Rica	Denmark	1 $\frac{1}{2}$
1	Colombia	Ditto	1 $\frac{1}{2}$
1	Jamaica	Ditto	1 $\frac{1}{2}$

WHO/UN-TA

INTER-REGIONAL-318, Medical Education (Surgery)

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Chile	Denmark	2 $\frac{3}{4}$
1	Colombia	Ditto	2 $\frac{3}{4}$
1	Mexico	Ditto	2 $\frac{3}{4}$
1	Venezuela	Ditto	2 $\frac{3}{4}$

WHO/UN-TA

INTER-REGIONAL-396, Seminar on the Control of Environmental Sanitation

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Brazil	Soviet Union	$\frac{3}{4}$
1	Mexico	Ditto	$\frac{3}{4}$

WHO (Geneva)

INTER-REGIONAL 913, Use of Computers in Genetics

<i>Awards</i>	<i>Place of origin</i>	<i>Place of study</i>	<i>Months</i>
1	Brazil	United States of America	$\frac{1}{2}$

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