

## INTERNATIONAL MEDICINE: DEVELOPMENTS IN THE FIELD OF TROPICAL MEDICINE, RESEARCH AND TRAINING\*

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I want first of all to express my thanks to the members of the Society for the honor and privilege of serving as your president during the past year. There are many reasons why we should be proud of our membership in this Society, the most important being that we are associated with, and participating in, a truly global effort in the field of Medicine, Medical Research and Training. The Society has contributed much, during its fifty-eight years of continuous activity, to the leadership and support of health and medical care programs which have involved disciplines in all areas of basic and applied science, and has incorporated peoples of all areas of the globe. We are, in all our efforts, an international organization.

A brief review of the early history of the American Society of Tropical Medicine seems proper in view of present developments in world affairs. It is of interest to note that a small group of physicians met on March 9, 1903 for the formation of an organization in Philadelphia for the Study of Tropical Diseases. These physicians, representing a number of specialties, were all members of the College of Physicians of Philadelphia and the majority held academic positions in the faculties of the University of Pennsylvania, Jefferson Medical College and the Medico-Chirurgical College, which later became the post-graduate School of the University of Pennsylvania. These men were not only interested in learning more about Tropical Medicine, but were interested in being able to teach their students about diseases found in the tropics and subtropical regions.

Why this development of interest by physicians in Tropical Diseases in the United States? There is little doubt but that a war, as has been true on two occasions since, was directly responsible. The Spanish-American War of 1898, short as it was, lifted the United States to a new interna-

tional plane. This country suddenly became one of the dominating factors in World Politics, with major responsibilities in the Caribbean area and in the Pacific. With military bases in these widely separated areas of the world, and located in tropical climates, came the health problems created by tropical diseases. Thus, the medical and allied health professions, and the Armed Forces became involved in medical problems of other parts of the world. It is also true that science and medicine were making great strides as a result of progress in clarification of the etiology of certain diseases. The germ theory of disease had been proven beyond a doubt, and methods of prevention of certain diseases through a new field, immunology, was developing.

The name selected for this new study group was the "Society of Tropical Medicine of Philadelphia". A council was formed and at its first meeting, held on March 20, 1903, the name was changed to "American Society of Tropical Medicine". On May 25, 1903, a charter was adopted to incorporate the Society in the County of Philadelphia, State of Pennsylvania, under which it operated until 1933 when a new constitution and by-laws were adopted.

The first public meeting of the Society was held at the University of Pennsylvania on January 9, 1904, and was addressed by James Carroll, Surgeon General, U. S. Army. His subject was "Etiology of Yellow Fever."

The first annual meeting was held in Lower Hall, College of Physicians of Philadelphia, on March 21, 1904. It consisted of an exhibit of pathological material on amebic and bacillary dysentery, liver abscess, duodenum "with uncinariae *in situ*"; *Leishmania donovani* in blood films presented by Sir Patrick Manson. At a business meeting following the pathological exhibit, it was reported that there were 30 active members, 6 corresponding members and 22 honorary members. Among the honorary members were two men, Sir Patrick Manson and William C. Gorgas, who furnished inspiration for the group and were influential in directing their energies.

In the light of present developments of training

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programs in Tropical Medicine, it is of interest to note that at a meeting of the Council on December 4, 1904, it was voted unanimously "to recommend to the Society that some action be taken upon the suggestion of Sir Patrick Manson, that it would be wise to endeavor to secure public school training in the hygienic prophylaxis of tropical disease in Hawaii, Puerto Rico and the Philippine Islands." This recommendation was approved by the Council. At the same session, it was urged that nominees for active membership be secured from outside Philadelphia. Almost immediately, American practitioners, educators and research workers from the Southern States, Cuba, the Panama Canal Zone, the Philippines, China, and Africa became active and corresponding members of the Society. These new members brought with them broad interests and experience in medical problems of other parts of the world. Thus, in a short period of time our Society developed from a small but dedicated local group of physicians into an international group interested in and actively engaged in the practice of Tropical or World Medicine.

The early years of the twentieth century brought new development in scientific methods and great advances in the science of immunology and in bacteriology. World War I brought another burst of interest in Tropical Medicine. Time does not permit a detailed report of major developments involving the diseases of interest in terms of Tropical Medicine up to the end of the war. Although the Society was thought to have been founded under favorable circumstances, Henry J. Nichols, in 1921, said in his presidential address: "A year ago, I was told the prognosis for the Society was bad. I began to feel that my own function might be to conduct a post-mortem, but it is evident that the patient is making a good recovery. It may be asked why a society which has had among its recent presidents leaders such as Gorgas, Thayer, White, Stitt, Strong, Rosenau, Ashford and Bass should ever be thought to be in a precarious position." American specialists in Tropical Medicine were comparatively few in number and were widely scattered. It was difficult for any considerable number of the members to meet at the same place at the same time. At that time, 1921, there were 108 active members and the attendance at meetings was usually about ten or twenty.

The development of Tropical Medicine teach-

ing in our United States Medical Schools is of interest, since research and teaching are equally important functions of a university. The influence of the universities that have included teaching and research in tropical medicine cannot be over-emphasized as important contributors to maintaining an interest in the problems of international health and medical care.

In 1911, the Tulane University of Louisiana established the first Department of Tropical Medicine in the School of Medicine. There has been a continuous flow of contributions to Tropical Medicine from this School and instruction has been given to all students since 1911. It is of interest to note that the last Department of Tropical Medicine and Medical Parasitology to be added to a United States Medical School was at the Louisiana State University School of Medicine, in 1960, located less than one city block from the first department to be established.

In 1914, Harvard Medical School formed a department of Tropical Medicine and Dr. R. P. Strong left the Bureau of Science in Manila for the professorship in this department.

Although not a medical school department, a Board for the Study of Tropical Diseases was organized by the Medical Department of the Army at Ponce, Puerto Rico, in 1913, and Major Bailey K. Ashford was appointed its president.

This board continued for several years and its main interest was the study of hookworm disease. After World War I, Colonel Ashford returned to Puerto Rico and, under his leadership, the School of Tropical Medicine was built at San Juan in 1926. The building was erected by the Insular Government, but the School itself became a branch of the University of Puerto Rico, under the direction of Columbia University. Dr. Robert D. Lambert was appointed its first director, 1926 to 1928, followed by Dr. E. B. McKinley from 1928 to 1931. The School offered full courses in Tropical Medicine, as well as opportunity for research. In 1928, Columbia organized a Department of Tropical Medicine, as a subdepartment of the Department of Medicine.

In the University of California, the Pacific Institute of Tropical Medicine began as a division of the Hooper Foundation in 1929, with Dr. Alfred C. Reed its Director. Here special instruction was given in the laboratory diagnosis of tropical diseases, and a course in Tropical Medicine was given in the School of Medicine.

Although mention has been made of these few universities having special Departments of Tropical Medicine, it must be recognized that many others were active in either research, in teaching, or both. Many contributions bearing on Tropical Medicine emanated from other departments such as the Department of Parasitology at Johns Hopkins and the Departments of Preventive Medicine, Medicine and Microbiology in other schools. There has been a creditable amount of teaching and research in Parasitology and related fields in some graduate schools throughout the United States.

The interest in International Medicine by physicians, health workers, our Government, and philanthropic organizations in the United States, is not of recent origin. International Medicine and cooperation in studies of World Health problems, has grown out of a broadening realization of needs in a world which for more than a century has been gradually contracting; this as a result of technical evolution and other developments. With this closer relationship there developed an increasingly complex international economic and political interdependence, and the presence of disease in one region constituted a continuing danger in other areas of the world.

One of the first international health organizations, the Pan-American Sanitary Bureau, was created in 1902, just one year before the organization of this society. The PASB, now the PAHO, was formed to deal with health problems of the Americas.

The contributions made by the International Health Division of the Rockefeller Foundation, in International Medicine, can never be equaled by any single organization. Beginning with the Rockefeller Sanitary Commission in 1909 for the eradication of Hookworm disease in the southern part of the United States, this commission led to the creation of the Rockefeller Foundation in 1913. The Foundation created the International Health Commission, which became the International Health Board in 1916 and finally the International Health Division in 1927. This great Foundation has demonstrated without question that of all fields of endeavor, international health is best suited to provide a mechanism for working together without competition in a cause which is of benefit to all peoples of the world.

Following World War I came the development

of the League of Nations and the Health Organization of the League. The major objective of the Health Organization was first to develop a world-wide medical intelligence service and to organize an effective mechanism for a continued global attack on major disease problems of the world.

Regardless of our relationship to these international organizations interested in the health problems of the world, developments in the field of Tropical Medicine did not keep pace with others. This became evident at the beginning of the World War II. The inadequate teaching programs in the majority of our schools of medicine made it necessary to set up special courses in Tropical Medicine and Medical Parasitology for our medical officers and for our civilian teachers. Field experience was provided for some in order to enhance their teaching and service. We found ourselves without current drugs used in the treatment of one of the major diseases of the world, malaria . . . . . the drugs then in use were in the hands of the enemy.

This is only one example of the pressures of war bringing the problems of Tropical Medicine into the area of top priority. In the Pacific were health problems such as filariasis, malaria, schistosomiasis, gastrointestinal, infections and rickettsial diseases, and there was no satisfactory method of treatment for the majority of these diseases. In addition to these diseases was an environment which in itself contributed much to the health problems facing our armed forces.

World War II, without question, did more to stimulate the interest of our scientists and our government in Tropical Medicine, than any other event in our history. The advances made during and since the war in the treatment, prevention and control of some of the major diseases of the world have made medical history.

At the end of the war, the United States Public Health Service developed, through its National Institutes of Health, a broad program of research in medicine and allied sciences. The Tropical Medicine and Malaria Study Sections were among the first to be formed to assist the Research Grants Division in selecting worthy research projects. These two study sections were extremely active in the beginning, but within a few years the number of requests for support of research in these fields gradually declined. The interest of those responsible for appropriation

of funds also declined and the malaria study section was merged with the Tropical Medicine study section.

During 1950 and 1951, the members of the Tropical Medicine Study section and the Division of Research Grants of the National Institutes of Health sponsored a two-day conference on Research Needs in Tropical Medicine. In addition to members of the Study Section, a number of investigators from Canada and other parts of the world, representatives of the Armed Forces and other interested groups, participated. The objectives were to discuss the research needs and neglected areas of research in the field of Tropical Medicine and to make recommendations.

At the conclusion of the conference, the discussions clearly indicated that there was an urgent need for training of young investigators in the basic sciences allied to tropical medicine. It was evident that more recognition should be given to the areas related to the entire field of tropical medicine, such as biology, chemistry, biophysics, general and cellular chemistry, and many others. It was also recommended that development of cooperation among scientists of diverse training and interest should be encouraged to investigate basic problems in Tropical Medicine.

One of the major recommendations of this conference was that a resurvey of the medical schools should be made "to determine the nature and extent of the stimuli and opportunities in Tropical Medicine and Tropical Public Health." In September, 1953, after a careful evaluation of the conference report, the Study Section requested that a survey of the current teaching of Tropical Medicine and Parasitology in the United States medical schools be made. Two previous surveys had been reported, the first in December, 1941, at the request of the Association of American Medical Colleges, which had appointed a committee to determine needs in view of the Armed Forces requirements for men trained in this field. The inadequacies at that time in training in this discipline were evident in most of our medical schools, but the majority responded to requests for increased time to help meet the needs. This increase in teaching time was aided by the program for providing intramural and field training for medical school instructors as well as medical officers. A resurvey at the end of the war showed that there had been a marked increase in the

number of hours devoted to parasitology, and the instruction given in Tropical Medicine in distinction from Parasitology was even greater.

The resurvey of the U. S. Medical Schools completed in 1954 showed that the number of hours devoted to the teaching of parasitology had decreased slightly, and was given as a separate course in only 48 per cent of the schools. Teaching Tropical Medicine as a recognized subject had decreased markedly since 1945. In 1945, 95 per cent of the schools reported specific hours of instruction in Tropical Medicine, whereas in 1954, only 30 per cent so reported.

There were 106 research projects in Parasitology or Tropical Medicine, and the majority dealt with parasitological problems.

The 1954 survey also disclosed that only fifteen fellowships in Parasitology or Tropical Medicine had been awarded to staff members of schools of medicine during the previous five-year period. Over half of the medical schools expressed needs or desires for fellowships. The greatest needs expressed were for funds for personnel, equipment, teaching material and fellowships, especially to gain experience in the tropics. The directors of this survey, Meleney and Frye, recommended that strong action be taken by the Societies of Tropical Medicine and Parasitology to encourage support for increased facilities for teaching, field experience and opportunities for research in tropical areas. During the same year, Dr. Frederick J. Brady, then President of the American Society of Tropical Medicine and Hygiene, 1953 to 54, suggested the urgency for a broad international Survey of Needs in the Field of Tropical Medicine. In January of 1954, he appointed a committee of the society to consider methods and means for the implementation of such a survey. This committee, under the chairmanship of Dr. Albert Sabin, has been a continuing one and has been responsible for enlisting the aid of several Government departments, and in turn, the National Academy of Sciences-National Research Council. In 1958, funds were made available for the implementation of the survey. This study has been under the direct supervision of Dr. Willard Wright, assisted by an advisory committee on Tropical Medicine. This complete survey report will be completed early in 1962.

The results of the Medical School survey, made by Meleney and Frye, were reported to the

Parasitology and Tropical Medicine Study Section of the Division of Research Grants of the National Institutes of Health at its meeting on January 6, 1955. The Study Section heard the report and approved in principle a plan presented to establish a Tropical Medicine fellowship program to be administered by the Louisiana State University School of Medicine. A detailed program and budget were prepared and presented through the Study Section to the National Advisory Health Council in 1955. The council recommended the program for support, but no funds for such a program were available. The same response was met with other governmental agencies. Meanwhile, the China Medical Board of New York, which established the Peking Union Medical College and supported it until it was taken over by the Chinese Communists, expressed an interest in this program because of its purpose to promote knowledge of the exotic diseases. Our proposal for support of a Tropical Medicine fellowship program was presented to the China Medical Board of New York. This board at its meeting on April 5, 1955, approved our request and an appropriation of \$80,000 was made to the Louisiana State University for a period of two years. I had, along with Dr. Willard Wright and Dr. Kenneth Endicott from the National Institutes of Health, visited Costa Rica to arrange for a field program. We also secured the cooperation of Dr. Antonio Pena-Chavarria, director of the San Juan de Dios Hospital in San Jose, to assume responsibility for the program in Costa Rica and the Central American area. This group had also visited Dr. E. Harold Hinman, Dean of the School of Medicine of the University of Puerto Rico. In both areas, we received a cordial reception and assurance of support and cooperation in the development of a Tropical Medicine fellowship program.

The first fellowship group was organized for July and August 1955. Four yearly two-month fellowship periods were planned with intervals of one month between each period. Due to the interest and success of the first year's program, the China Medical Board approved an additional year or three years of support at \$40,000 per year, or a total grant of \$120,000. At the end of this three-year period of support from the China Medical Board of New York, the National Institute of Allergy and Infectious Diseases had received an appropriation for training grant sup-

port, and a request for funds to continue the Tropical Medicine Fellowships was approved by the Council on Allergy and Infectious Diseases for a five-year period. To date, 207 individuals have participated in this program.

This fellowship program, along with the overall developments in medical research and training, has helped to stimulate a much broader interest in Tropical and International Medicine. Attempts have been made to increase the scope of our interests in Tropical Medicine to include more than the narrow approach to only the infectious or communicable diseases in the tropics.

In 1959, a supplemental request was made to the Allergy and Infectious Diseases Institute, Training Grants Committee, for funds to establish a period of training for senior medical students from the United States Medical Schools. Many of our teacher fellows had suggested that they frequently had dedicated students who would profit by an opportunity to work in designated areas of Central America or the Caribbean area. This type of experience, with adequate local supervision, had already been tried with a few senior medical students who were able to finance their own program. A small supplemental grant for this type of program was made available, and to date we have had 31 senior medical students from 25 schools of medicine throughout the United States participate as fellows. The success of this program has already been recorded by the local preceptors in the various areas, and by the enthusiasm of the students. We are now assisting some of these students who have completed their internships in getting further training for foreign duty and for careers in public health. The good will created by these students among their medical colleagues, the local physicians and the friends they have made in the various areas is immeasurable. In addition to their broad experience in the medical and health problems of the various countries, they have served as good-will ambassadors.

The Smith, Kline and French Foreign Fellowships for medical students were made available in 1960. Originally planned for a three-year term and due to expire in 1962, the program was recently extended through 1963. This senior medical student fellowship was made possible through a grant from Smith, Kline and French laboratories of Philadelphia and is administered by the Association of American Medical Colleges. This

Foreign Fellowship offers senior students enrolled in United States medical schools an opportunity to travel abroad to work and study in remote areas of the world. During the past two years, fellowships were awarded to 59 students. The fellowship provides, as does the L.S.U. program, money for travel costs and living expenses at the site of the students' overseas program. Here again, the students are making an important contribution to international medicine as well as international relations.

One may ask why all the concern about such training programs? Is there need for personnel, and what are the prospects for a career in International Medicine, or Tropical Medicine? When one examines the developments in our overall interest in the health problems of the free world and the national and international agencies now participating, the needs become obvious.

During, and immediately following, World War II, came a reorganization of the major international health programs. The pre-war programs were mainly under the direction of the Pan-American Sanitary Bureau, Washington, D. C., the International Health Office, Paris, the Health Organization of the League of Nations, and the Division of Industrial Health. Two new agencies were organized during the war, the United Nations Relief and Rehabilitation Administration and the Food and Agriculture Organization of the United Nations, each primarily concerned with the prevention of disease and the maintenance of health. In 1942, again under the pressures of war, the Institute of Inter-American Affairs was organized, and plans were laid to establish and coordinate bilateral health programs as a means of tying together more closely the nations of the Western Hemisphere. For these health programs, the United States became identified as a partner working with countries helping them to help themselves.

When UNRRA was dissolved in 1947, its health programs were transferred to the United Nations Interim Commission. Then the World Health Organization, with its first full calendar year of operation in 1949, coordinated all other international health agencies, intergovernmental and non-governmental.

During 1950-53, the Technical Cooperation Administration was established within the Department of State in response to President Truman's proposal for a "bold new program" of

cooperation with all underdeveloped areas in the fight against disease, poverty, ignorance and political instability.

In 1953, President Eisenhower combined the Mutual Security Program, including the Institute of Inter-American affairs, into the Foreign Operations Administration. Then in 1955, these operations were all combined into the International Cooperation Administration, now AID.

All of the foreign aid programs have emphasized preventive medicine and public health. As interest in medical education increased, the ICA has turned to the American medical schools for assistance, not only from trained personnel for overseas assignments, but assistance from the entire medical school and university through contract agreements. My own school has been assisting, through an ICA contract, in planning a building and training staff for a completely new medical school in San Jose, Costa Rica. This opportunity has been most rewarding for our staff and has secured enthusiastic acceptance in Costa Rica.

These international organizations have grown rapidly, calling on many members of this society for consultation and service. The needs for personnel now are acute, and the demand is increasing. During the past month, the directing council of the Pan-American Health Organization, after a two-weeks' policy session, stressed need for 100,000 more physicians, 23,000 more nurses, 62,000 more dentists, and 4,000 more sanitary engineers.

What more can the American Society of Tropical Medicine do to assist? This is truly an international society, but are we as members taking advantage of our opportunities and making our contribution to our country's effort of assistance where needed in the free world? I am certain we could and should do more. Opportunities are greater today than ever before to train young scientists in a variety of disciplines with actual experience in many parts of the world.

The Congress of the United States has expressed concern regarding medical research, research needs and the training of manpower to meet the growing needs. Appropriations made to the United States Department of Health Education and Welfare, and through the United States Public Health Service research grants and intramural programs have made possible the promotion of medical and allied science research pro-

grams of national and international scope. Until recently, however, opportunities for international research training were limited. In the collaborative efforts with independent countries, it becomes imperative that research workers be trained in a variety of environments throughout the world. Much thought and planning has been given to the possibility of developing international centers for research and training.

The development of international centers has now been made possible under the International Health Research Act of 1960, Public Law 86-610. An appropriation was made available to the National Institutes of Health to develop International Centers for Medical Research and Training.

The law states "the intent of Congress that the Public Health Service shall support health research and research training overseas and the objectives to be sought in overseas health and training programs."

This program will provide for the development of stable international centers for medical research and training with opportunity for the training of research personnel. These centers will enable United States physicians and scientists to acquire broad field experience through projects conceived in ample breadth and duration. They will also be designed to encourage basic scientists, physicians and other health personnel in collaborating foreign institutions to participate in the development of health research and training resources in their natural environment.

Dr. James Shannon, Director of the National Institutes of Health, in a recent report, stated: "The two components of a center, the United States base and its overseas institutions, will have these characteristics: a United States university, providing a stable professional framework in which medical research projects, planning, and training can be conducted, and associated research and training establishments overseas where these activities can be pursued under environmental, ethnic and medical conditions that do not prevail in the United States. Five such centers are now being organized. I am confident that they can fulfill in some measure the express hope of Congress for: a program through the United States universities for the early development of research and research training centers with adequate field opportunities for international studies."

The stage is now set for the development of research and research training in Tropical Medicine throughout the free world. Present programs make it possible for university and other scientists to undertake investigations on tropical diseases in the environments where they are the most important health problems. We in the Society of Tropical Medicine and Hygiene represent a cross-section of the health professions, held together by an interest in international medicine. In closing, how can we as a society and as individual members, develop a broader interest, in order to make a greater contribution to the Tropical Medicine needs of tomorrow?