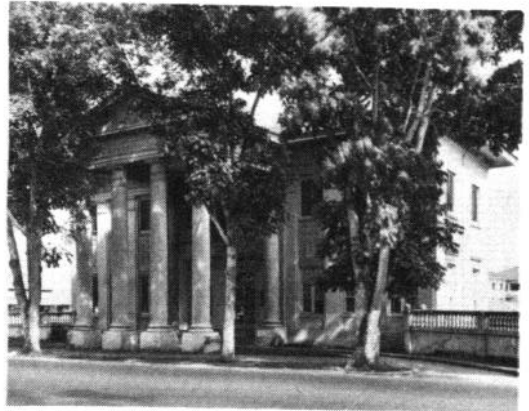


Abstracts and Reports

THE GORGAS MEMORIAL INSTITUTE AND NEW RESEARCH TRENDS IN TROPICAL MEDICINE

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Last year, on 28 October 1976, the Gorgas Memorial Institute of Tropical and Preventive Medicine held its annual meeting at PAHO Headquarters in Washington, D.C. The Institute is the parent organization of the Panama-based Gorgas Memorial Laboratory, a major Western Hemisphere center for tropical disease research.

In March 1976 the first meeting of PAHO's Advisory Committee on Dengue, Yellow Fever, and *Aedes Aegypti* was held at the Gorgas Laboratory, and the Laboratory has since become the operating center for PAHO's newly appointed Regional Adviser on Parasitic Diseases. The recent annual meeting at PAHO Headquarters thus represents a continuing trend toward closer collaboration between the Gorgas Institute and the Pan American Health Organization.

The keynote speaker at the annual meeting, Dr. Lee M. Howard, observed that this trend toward increased international collaboration on tropical health research is by no means limited to a few organizations. His analysis suggested that this new approach has been adopted to enhance both funding possibilities and the effectiveness of research efforts. The following is an abridgement of Dr. Howard's address.

Introduction

The 54th Annual Meeting of the Gorgas Memorial Institute is an occasion for celebration. After a series of very difficult years, organizationally and financially, the Gorgas Memorial Laboratory appears to have regained a sound base of support with which to plan rationally for the future.

It is equally evident that some of the

most troublesome issues before the Laboratory in the past several years have not been ones of scientific discovery but of program content, support, and organization. This set of issues is not unique to Gorgas. In his presidential address to the Annual Meeting of the American Society of Tropical Medicine and Hygiene in 1971, W.C. Reeves stated: "I contend that while we have won many battles in our research effort, the long-range and bigger war to contain certain infectious diseases can still be lost. I believe there are a variety of technical, economic, social, and political factors that

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will influence the outcome of this contest. We, as scientists, tend to forget that the majority of these factors can be quite independent of the status of our scientific knowledge or competence." (1).

Reeves goes on to explain that economic support for research will fluctuate in economic competition with other social concerns. This recognition is echoed by other leading scientists and by science writers such as Daniel Greenberg (2), whose July 1976 Smithsonian article entitled "Scientists Wanted—Pioneers Needn't Apply" reflects the shift away from the "good old days" of frontier science and toward the fine-screen selection process.

Changing Research Patterns

In this context, it is useful to note how research needs are being viewed by certain groups inside and outside the health field.

In the area of agriculture, answers to the question of how to grow enough food have depended largely on the productivity of a global network of research centers which collaborate under the title of the Consultative Group on International Agricultural Research. The principles espoused in this network include the notion that every research center cannot be equally proficient in all aspects of tropical agriculture. Given the scarcity of manpower and the great variation in factors affecting the same crop in different locations, the Consultative Group has encouraged the inclusion of special centers—such as the International Rice Research Institute in the Philippines and the wheat center in Mexico—where scientists from many nations gather for a concerted research attack on a common problem area. The merits of the network are concentration of effort by mutual agreement, pooling of funds, rapid exchange and sharing of information, and maintenance of the unique individuality of each participating research institution.

International health has been slow to come to this form of global collaboration. In his address to this meeting last year, Dr. Héctor Acuña, Director of the Pan American Sanitary Bureau, described PAHO's role in research as that of a catalyst, stating "What we have put in has been small compared with the product that has resulted from our participation. The explanation is that the countries and institutions benefiting from our assistance are themselves making the major effort to carry out the undertaking to which we are jointly committed." Certainly, this process has encouraged the most efficient use of limited PAHO research funds. But despite its efficiency, this approach represents only one collaborative step toward achievement of the research priorities involved.

New Program of Tropical Disease Research

In response to a resolution of the 1974 World Health Assembly expressing the need for a coordinated program of tropical disease research, the World Health Organization and the United Nations Development Program have jointly sponsored the development of a program, not yet operational, which is called the Special Program on Tropical Disease Research and Training, also known as the "TDR Program."

The two main objectives of this program are:

- To develop improved tools for controlling tropical diseases, and
- To strengthen biomedical research capabilities in tropical countries.

The initial set of six diseases targeted by the program are malaria, schistosomiasis, filariasis (including onchocerciasis), trypanosomiasis (including Chagas' disease), leishmaniasis, and leprosy.

Globally-selected scientific working groups on each disease or technical subject area will be made responsible for outlining a research program based on analysis of the

principle constraints to control of the disease in question. The implication is that tools such as drugs and vaccines, however essential, may not contribute sufficiently toward effective disease control. Consequently, research on other major facets of disease control—facets such as vector control, epidemiologic diagnosis, and methodology—may be equally important. Therefore, scientific working groups will also be convened to focus on a number of these so-called “trans-disease” subjects.

In general, the program follows the pattern of international research funding found in the agricultural model—a pattern including definition of internationally accepted objectives, joint accountability by donor agencies and affected countries, and the pooling of research funds by many donors to permit a quantum of effort not readily accomplished by institutions with a single base of support.

Other Examples

This trend toward donor consortium funding is not limited to the field of tropical disease. WHO and the UNDP, joined by five other donor groups, recently proposed an international program of research, service, and training in the field of community water supply and sanitation, relying largely on the prospect of pooled resources from major international donor agencies.

Not all collaborative efforts are on a global scale. There remains, nevertheless, the concept of consortium funding. The Cholera Research Laboratory in Dacca, Bangladesh, remains one of the world's outstanding institutes for research on enteric diseases. Funded largely by AID and staffed by NIH, CDC, and the Government of Bangladesh, an effort is now underway to enlarge the scope, function, and support base of this institute. Traditional emphasis on enteric diseases is

now being recast to confront the inseparable relationships between enteric diseases and malnutrition, and between malnutrition and rates of human reproduction. A new five-year plan has been proposed to incorporate these thrusts into an International Institute of Health Research. Ecologically, an inter-disciplinary approach becomes mandatory if the ultimate research benefit is to be translated in a realistic manner into benefits for populations in affected countries. As in the Special Program of Tropical Disease Research and Training, the assumption is made that health research in the tropics should be oriented toward some goal other than enlarging the volume of scientific literature.

These few illustrations may not be adequately representative of the recently growing trend in research support, but they highlight a new awareness of the style which is becoming an economic and scientific necessity. The main elements of this style are as follows:

- Research needs in the tropics are so great that no one institution should seek to be an all-inclusive unit.
- There is economic and scientific merit to participating in institutional networks which have mutually agreed-to objectives and which foster a concentration of effort within a framework of improved and continuous funding.
- The unique competence and independence of each institution should be maintained.
- International health and tropical disease control require a broad multi-disciplinary research base. Problems should be examined in their full ecological context, including nutritional and demographic aspects.

The Future of Gorgas

Do these trends conflict in any serious way with the traditional goals of the Gorgas Memorial Laboratory?

The introduction to the briefing book for this annual meeting includes the following notation: “The idea for its [the Gorgas Memorial Institute’s] creation originated

with the President of Panama, who suggested the establishment of a research center in his country where the nations of the Western Hemisphere would commemorate the pioneer work of General William Crawford Gorgas by cooperating in studies leading to the solution of their common disease problems."

The Institute's official objectives are stated as follows: "(a) Investigations to discover fundamental facts on diseases of the tropics, their vectors, and *related health problems*. (b) Development of new methods and systems of control, *prevention*, and cure of diseases in the tropics. (c) Action as consultant to and collaborative with those who are engaged, at the government level, in the prevention, control and solution of the environmental health problems of the Republic of Panama."

There appears to be nothing here that would rule out expanded programs of research and training which, assuming adequate support, would address the major disease problems of the tropics. The familiar range of tropical health issues includes not only the traditional parasitic infections but also fundamental research in those areas of health which have been stressed repeatedly by the countries of the Western Hemisphere since the 1972 Santiago meeting of the Ministers of Health—namely, health delivery systems, health planning, nutrition, manpower training, human reproduction, and environmental health.

It requires a certain ambivalence to espouse an ecological view of tropical disease research if investigation is confined primarily to limited (albeit critical) components of a disease problem, such as parasitology or bacteriology. It is well understood that tropical disease ecology encompasses a complex of biological, social, economic, and cultural factors. Serious consideration of any of the three stated objectives of the Gorgas Laboratory would

invite a broad view of the needed areas of research.

Acknowledging that the work of Gorgas to date has been broad within the limits of financing and available scientific manpower, what variations or additions might be explored for the future?

Current Programs

The major current experimental programs should be retained. One is impressed, however, with the range of ancillary projects identified within most of the units of investigation. The relevance of these might be reassessed in terms of the Laboratory's stated objectives.

The TDR Programs

Gorgas may wish to align itself with the WHO/UNDP Special Program on Tropical Disease Research and Training. This could relate not only to Gorgas' unique contribution to research on malaria, Chagas' disease, and leishmaniasis, but also to its ability to provide research training on these subjects.

Environmental Assessment

The demands of developing countries for energy through hydroelectric power and for greater amounts of irrigation water will lead to increasing efforts by Western Hemisphere nations to construct dams, irrigation systems, and other water-related projects. Has Gorgas considered augmenting its technical capability to respond to the increasing demand for environmental assessments which are no longer optional requirements of donor agencies?

Agricultural expansion programs to meet the food needs of the Americas are associated with the environmental impact of deforestation, use of insecticides, introduction of irrigation, and population move-

ments. Is Gorgas prepared to assess the impact of these programs at locations in the Americas outside of Panama? In this context, should Gorgas be maintaining an information exchange with other institutions in the Hemisphere which are working on the same problem? For example, Gorgas has maintained a scientific linkage with Yale University. Is Gorgas aware of current Yale experience with environmental assessment of the large river basin development programs in Africa's Sahel Region?

Enteric Disease, Malnutrition, and Human Reproduction

A final suggested subject for future action is research on the interrelationship between enteric disease, malnutrition, and human reproduction, a major complex of morbidity and mortality causation. The Inter-American Investigation of Mortality in Childhood has shown that malnutrition was an underlying or associated cause of death in 57 per cent of the cases studied. But childhood malnutrition cannot be dissociated from enteric diseases in children, nor can it be dissociated from infant

immaturity and low birth weight phenomena directly correlated with birth order and the interval between births.

The synergism of infectious disease, malnutrition, and high human fertility continues to constitute one of the most formidable and, as yet, unyielding causes of death in the tropics. Unless our view of tropical disease is restricted to the classical parasitic disease entities which were the observed challenge 100 years ago, hasn't the time come for a careful reexamination of research requirements in relation to those issues which are clearly the critical problems of today's poor?

Although each of these four suggested directions for exploration are associated with known funding sources, the Gorgas Institute is not necessarily obliged to seek a program which adjusts purposes and objectives in order to receive scarce funds. Gorgas does have the research record, the competence, and the potential to determine very largely its own direction, in accord with its approved objectives, in response to major tropical disease problems of the Western Hemisphere, and in collaboration with new international efforts to provide research support. That, I believe, is the challenge facing the Institute today.

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