

The Institute of Human Biology of Papua–New Guinea

R. W. Hornabrook

A unique opportunity for scientific collaboration in the fields of social, medical, and anthropological research is opening up in Papua–New Guinea as a result of the setting up of an Institute of Human Biology at Goroka. This development could be of particular interest to American scientists because of the recently negotiated agreement relating to scientific and technical cooperation between America and Australia. Under this agreement the governments of the United States and Australia have expressed a desire to collaborate on joint research projects of interest to both countries. Government agencies have been set up—the National Science Foundation in America and the Department of Education and Science in Australia—to coordinate activities.

Human Biology in New Guinea

New Guinea offers many opportunities for research into the biology of man. A rugged mountainous landscape, dense forests, disease, and fierce people have for centuries preserved the interior of New Guinea from most external influences. The eastern half of the island now administered by the Commonwealth of Australia with an area of 474,000 square kilometers contains high mountain ranges with associated upland valleys, immense flat river swamps, a variety of tropical islands, dry eucalypt savannah, and dense jungles. The diversity of the landscape is associated with a variation in the human population. Over 600 different languages and countless dialects are one manifestation of the fragmentation and independent development of groups of people. Differences in diet, material culture, and social organization are

found, as well as differences in physical form and disease pattern.

Western acculturation is now superimposed on this variability. In 1963, Souter was able to title his book *New Guinea the Last Unknown*, but he had to describe the dramatic changes which were already transforming the land. Change is still occurring. European salt is replacing the traditional salt manufactured by leaching the ashes of certain plants. Tinned fish and meat is supplanting the generally spare protein diet of wild game. Regular hours of labor are displacing the desultory activities of the past. The stresses of dealing with a cash economy are now more important than the emotions arising from tribal fighting. Old traditional proscriptions concerning marriage are being broken down, and intermarriage is occurring between groups previously separated by inviolable barriers. Some populations have already been exposed to most of these influences, but others in remote areas are taking the first steps along the same path. The situation offers an opportunity to examine in a short space of time the changes which occurred in the lives of the progenitors of Western man over the millenium.

The Institute of Human Biology

One of the principal reasons for establishing the Institute was to provide a base for the investigation of social, medical, anthropological, and other human biological problems. The first steps were formally taken in September 1967, when the Territory's House of Assembly approved an ordinance which defined the Institute's objectives and administrative structure. The Institute is to be governed by a council of 11 members representing various New Guinea organizations and including four Australian medical scientists. The

chairman is Sir Macfarlane Burnet, and the director is responsible to this body. The Institute, independent of government control, receives a small annual grant from the New Guinea Administration, but support from external agencies is necessary to meet the cost of most of its research projects. As defined in the ordinance, the Institute is to concern itself with the conduct and fostering of research into (i) any branch of medical science or biology, (ii) anthropological and sociological aspects of health and ill health, and (iii) matters relating to public health relevant to New Guinea conditions.

With the appointment of a director and the acquisition of appropriate buildings in the Madang and Goroka hospitals, the Institute has taken substantial steps toward recognizing some of its objectives. The headquarters, now sited in Madang on the north coast of the New Guinea mainland, will move to Goroka in the eastern highlands early in 1970.

Opportunities

The New Guinea people have interested both physical and social anthropologists since they were first discovered by Western civilization. A substantial bibliography has accumulated, but the scope for further investigations is still immense.

As its first research project the Institute has undertaken the direction of the International Biological Program study of human adaptability in two New Guinea populations. The projects are multidisciplinary studies of a coastal Melanesian population on Kar Kar Island off the north coast of the New Guinea mainland and of a highland population near Goroka. They should serve as prototypes for future investigations in other parts of New Guinea. A field laboratory and housing for visiting scientists have been built on Kar Kar Island adjacent to the village which is being investigated, and a complete demographic survey of the island is being conducted. Later, workers in the fields of physical anthropology, genetics, medicine, and parasitology will be included. A nutritional assessment of the population is planned to continue over 12 months, and the relation of diet to the energy requirements of the population will be evaluated. Studies of respiratory function, heat and cold adaptation, and work capacity will follow.

Dr. Hornabrook is the director of the Institute of Human Biology, P.O. Box 378, Madang, Territory of Papua and New Guinea.

Medical Research

Certain medical problems are peculiar to New Guinea; others are of greater importance in New Guinea than elsewhere. Still other problems do not occur more frequently in New Guinea than in other underdeveloped parts of the world, but they are possibly more easily studied in New Guinea.

The work which has been undertaken on kuru in the eastern Central Highlands of New Guinea is an example of developments which may arise from research on what at the time appeared to be a matter of purely local significance. Kuru, a fatal organic disease of the central nervous system, occurs in a relatively small area of the Central Highlands of New Guinea. It affects people of the Fore linguistic group, of whom there are some 10,000 to 15,000 individuals. Between 100 and 200 of these people die of the disease each year. To the Fore people, kuru is the most important disease that occurs, and it is a dominant factor in their

culture. To the world kuru is unimportant, a few people dying in a small unknown tribe, a rare disease mentioned in small print or as a footnote in most textbooks. There has already been extensive clinical, epidemiological, genetic, anthropological, and experimental research on kuru by Australians and Americans. The most decisive discovery (made by Gajdusek and his collaborators) was that the disorder could be transmitted from patient to ape by intracerebral inoculation of autopsy material and that the disease is in fact the action of a transmissible agent with a long incubation period. This discovery has established a new horizon in the study of so-called degenerative or system diseases of the nervous system.

Arteriosclerosis, hypertension, and gout, common in Western society, remain rarities in Melanesia, and observations on the relation of these ailments to increasing Westernization may assist in understanding the etiology of these disorders.

When fully established, the Institute

of Human Biology expects to be involved in a balanced program in which work leading to an understanding of the biology of man will be conducted along with medical investigations which may be of more immediate importance to the welfare of individual people. Inquiries are invited from workers who may wish to undertake research in human biology among people undergoing rapid socioeconomic changes.

Summary

A new research institute has been established in New Guinea. The Institute will initiate research into a wide range of problems relating to the biology of man in a country well placed for such investigations. The influence of a changing culture on the incidence and forms of disease as well as medical problems of peculiar importance to New Guinea are also to receive attention. Inquiries from interested workers are invited.

NEWS AND COMMENT

Japan (II): University Turmoil Is Reflected in Research

Japanese universities are facing the most serious problems of any sector of the Japanese scientific establishment. An extraordinarily virulent outbreak of student unrest has struck most of the nation's leading universities over the past couple of years, thus disrupting the orderly progress of scientific research. And the campus turbulence has served to highlight a number of organizational and social rigidities that seem to be hampering the academic research effort. As one American science planner who recently returned from Japan expressed it: "The system is lousy. It's remarkable how well the Japanese have done considering the handicaps built into their system."

The Japanese universities have unquestionably made great strides over the past two decades. Harry C. Kelly, provost at North Carolina State University,

who was the top science adviser to General Douglas MacArthur during the American occupation and who co-chaired the U.S.-Japan Committee on Scientific Cooperation for many years, told *Science*: "The conditions now are pretty good. The scientists still need a lot of material help, but I compare the situation today with 1946 and it's a new world over there."

Similarly, an American science administrator who spends most of his time squiring visiting American specialists around Japan reports that their general reaction is: "Golly, 3 years ago I'd have guessed they were 15 years behind in my field. Now I'd guess they're only 3 years behind." In some fields, the Japanese may even be ahead. Harold R. Mighton, manager of technical liaison for the DuPont Company in the Far East, told me that the polymer depart-

ment at Kyoto University, which has more than a dozen full professors, "would make any of ours look sick."

But the entire Japanese university system is currently in a state of crisis and there is considerable debate about the health of academic research. On a recent month-long reporting trip to Japan I discovered a curious difference of opinion about the strength of academic science. Most of the Japanese I interviewed expressed a belief that the universities are the strongest part of the nation's research system, while almost every Westerner I encountered viewed industrial research as the chief glory of Japanese science. But proponents of both views agreed that the universities are facing critical problems that must be resolved if Japan is to continue its phenomenally rapid rise to world power status.

In the first article in this series I discussed Japan's initial ventures into the areas of "big science." This article will focus on university science, and a subsequent article will focus on industrial research. I have already mentioned some of the difficulties of coping with Japan, but it may be salutary to caution the reader again. Even specialists who visit Japan have difficulty assessing the quality and significance of Jap-