

EDITORIAL

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The International Biological Programme

The success achieved with the International Geophysical Year has inspired scientists to put forward that similar studies be arranged in the field of Biology. The International Council of Scientific Unions consequently authorized the International Union of Biological Sciences to explore the launching of an International Biological Programme — the IBP.

The IBP as a whole may be thought of as a world-wide ecological study of communities of plants and animals. It is concerned essentially with the functional relationships of living organisms to their environments, both on the land and in the water, and it includes those which still exist in their natural habitat as well as those living under more artificial circumstances.

The activities of the IBP were divided into several different sections to conduct research in the following fields: (i) the productivity of terrestrial communities, (ii) production processes, (iii) conservation of terrestrial communities, (iv) productivity of fresh-water communities, (v) productivity of marine communities, (vi) use and managements of biological resources, and (vii) human adaptability.

The main object of the IBP then would be the accumulation of scientific data from various fields which could be implemented in devising practicable recommendations for the improvement of human welfare. Whether these recommendations would take the form of introducing new or improved crops or animals, or of new and improved methods of food preparation, the ultimate success of the IBP will be determined by the beneficial changes which may be brought about in the quality as well as the quantity of food that will eventually be available to, and actually consumed by, malnourished communities.

The IBP also provides a great opportunity for studying the different aspects of human adaptability as it is manifested at the present time. As we are living in an era when the biology of the human race is undergoing continuous changes in respect of health, fitness and genetic constitution, it would seem appropriate that the IBP should include a section aimed at a world-wide comparative study of human adaptability.

Man, in his process of evolution, has created the most complex social environment of all the animals. Furthermore, he

has been subject to the selective pressures of the physical and biological environment, and has responded not only by the process of culture formation but also by the process of biological adaptation. The human adaptability programme, therefore, is concerned with the ecology of Man, and has been designed so as to allow an understanding of the variability in human adaptability by the comparative technique. In spite of the many physiological, genetic and anthropological studies undertaken in the past, we are still profoundly ignorant of the ways in which individuals and groups with diverse cultures adapt to their environment. At the present time we are witnessing a rapid change in the pattern of life among a large proportion of the human population, thus there is a special urgency to study those peoples who are still enjoying an undisturbed, traditional way of life. As there are very few of such peoples left today, every effort should be made towards conducting effective research on these groups, before they disappear from the scene.

The study of human adaptability would therefore be directed towards a wide variety of terrains, climates and social groups in order to deepen our knowledge and to apply this information to problems of health and welfare. However, in order to achieve satisfactory results for communities ranging from the very simple to the highly industrialized, an integrated approach, together with the application of methods from different scientific fields, is clearly indicated.

In the basic pattern of the human adaptability programme, provision was made for conducting large-scale multi-disciplinary studies which would draw on the diverse talents of scientists from many different countries, particularly those of human environmental physiology, population genetics and developmental biology, aided by auxiliary disciplines such as medicine, anthropology, ecology and demography. It was also decided that, wherever possible, areas of the world would be chosen where genetically similar groups are living in contrasting environments, or where dissimilar groups live in the same locality.

In studies of population groups, whether they are aimed at contrasts of habitat, selective effects of disease, level of physical fitness and working capacity, extremes in climatic conditions and so forth, account must be taken of the nutritional condition of the population concerned. Therefore, except in

the case of genetic surveys, the assessment of nutritional status is an essential feature of all the human adaptability studies. The IBP thus provides an excellent opportunity for examining the relationship between environment and food intake when genetically similar groups are studied in different, often contrasting, habitats.

Among the numerous nutritional problems which may be studied within the IBP human adaptability framework, the need for more information regarding protein requirements is of major importance. Although there appears to be considerable evidence that a low protein intake by adults may be compatible with good muscular development as well as a capacity for performing relatively hard physical work, there is also ample evidence of protein deficiency in children and in pregnant women. There are also many examples of unusual dietary patterns which appear to be compatible with good health, but in many instances the evidence available is fragmentary and of doubtful reliability. Thus, there are a number of nutritional problems which present a challenge to all those interested in human biology, and unless proper research projects are initiated in this field without delay, the position will remain unsatisfactory.

Within the Republic of South Africa, a number of different Bantu groups are living in various parts of the country with different environmental conditions. Many of these people are also involved in the process of transition from a peasant, rural life to an urban, industrialized one. Many forms of adaptation are therefore required to meet the changing conditions in respect of climate, levels of mental and physical activities, culture and diet.

A multidisciplinary study of certain selected Bantu communities in their rural peasant state, and after the transition into urban, industrial life, might therefore provide results which could be of immediate, practical value for the improvement of the health, welfare and productivity of the various population groups in this country.

The Republic's participation in the human adaptability project of the IBP, was outlined as follows in a Progress Report dated November 1969, by Mr D. J. M. Vorster, Convenor of the South African IBP (HA) Working Group:

'The South African Human Adaptability project is an attempt to study the sociological, cultural, psychological, nutritional, physiological, anthropometrical, genetic and medical aspects of human adaptation at an interdisciplinary

level. The study is conducted along a single continuum from a primitive subsistence economy way of life to a completely urbanized, industrialized one.

'Adaptations made by the different ethnic population groups within their homelands to varying climatic conditions, nutritional factors, mental and physical activities and health, in various parts of the country, and to changes in these conditions in the transition from rural to urban life, may be influenced by marked differences in their cultures and possibly by the genetic constitutions of the people involved in the change.

'It was decided to study selected ethnic groups in the process of transition from rural life to urban life. The first ethnic group studied was the Venda group—the rural Venda living in the Northern Transvaal and the urban group living in a specially designated township on the outskirts of Johannesburg, South Africa's largest metropolitan area.'

Professor J. F. Potgieter, at present at the University of Port Elizabeth, acted as co-ordinator of the Human Adaptability team during the Venda survey. He was also, at that time, head of the Division of Field Studies of the NNRI and organized the field work relating to the nutritional aspects of the survey. Dr A. le R. v.d. Merwe, Senior Chief Research Officer in the Field Studies Division, headed the clinical investigation of the subjects and subsequently undertook the editing of the combined reports. However, he died suddenly on 4 December 1969, before the work was finished.

Dr van der Merwe was well known for his association with South Africa's Antarctic research work and in 1969 was awarded the S.A. Antarctic Association's gold medal—a medal awarded annually to a South African whose research results, or work in connection with the South African Antarctic effort, merits special recognition.

He was medical officer to the first national expedition to Antarctica in 1960 and played a leading role in ensuring the success of the expedition. He also undertook medical research in Antarctica, particularly in the field of nutrition, and as programme director for physiological research, revisited SANAE, the South African base, in 1967.

Dr van der Merwe was particularly interested in physiological studies of isolated groups of peoples such as the Himba and Tjimba Bantu peoples of South West Africa and did much to stimulate research which has particular bearing on the adaption of the Bantu to the Western way of life.