

progressive improvement in those yields are much greater in the developed countries. It is not simply a matter of food surpluses on one hand and food deficiencies on the other; there are wide divergencies in the efficiency of the cultivator and in the resources he can command, as well as wide gaps between the primitive cultivator and the fund of knowledge long available to the developed countries. Progress in the developed countries is based on the fertility of the soil built up by generations of good farming practice, whereas in Africa and Asia the soil has often been depleted of nutrients by erosion and long years of exploitive agriculture. Emergent countries may have to start by making good long periods of neglect and depletion before many of the new techniques can yield results.

Apart from problems still unsolved as to how far existing knowledge regarding, for example, the ability of legumes to fix nitrogen is valid in the tropics, the innate conservatism of man poses social, political and technological problems which each country must solve for itself, with the appropriate means to which education, land tenure, irrigation and other technical factors contribute. Much more is at stake than production alone. More mechanization of agriculture will not provide the answer. In many countries the key factor is raising the efficiency of the individual cultivator and not the introduction of costly equipment which has proved its value under different conditions in the developed countries.

These considerations underline the importance of accurate surveys, such as Sir Harold Hartley has long urged, and which have now been made by the agencies of the United Nations. The problems are now defined, and what Sir Harold emphasizes in this Lecture is that the great challenge to the present generation, which involves the future of humanity and the stability of the world, is only to be met by some sacrifice of personal and national self-interest and by the recognition of the ultimate community of interest of the world in spite of fragmentation. Many difficulties have to be overcome and the greater freedom of world trade, the appropriate choice between various forms of aid, above all the devotion and inspiration of personal service, are not to be achieved by political dogma or formulæ. Each country must choose for itself the appropriate relation between man and machine, the wisest allocation of resources, without blindly following the economic, political, social, educational or technical pat-

terns of other countries where the relation of population to resources is different.

Finally, Sir Harold sees the relation between man and Nature as something deeper than the relief of hunger. It is interesting to contrast this lecture with Lord Brain's presidential address to the British Association in August, in which Lord Brain covered some of the same ground as Sir Harold. The difference, however, is that Lord Brain emphasized how little we know of man himself, whereas Sir Harold emphasizes the vast potentialities of the knowledge we already have—but without dissenting from our need to know more about man himself. When Sir Harold insists that the deeper problem is to find a way of living that will give human satisfaction and hope, he is challenging us to search for that further knowledge of man's nature which will enable us to find the means to redress the imbalance between man and Nature.

That challenge is sharpened in Sir Harold's final words when, quoting a passage from Sir Geoffrey Vickers, he insists that man was not made for leisure, and that he will continue to accept the challenges of Nature as he has done in the past. Sir Harold did not elaborate the point. He was content to leave it in the context of the words of Sir Geoffrey which he quoted: "For each of us, as well as for society and posterity, the need to struggle is the chance to grow. The world is like a dark forge, lighted by the sparks which men strike as they beat the stuff of life into significance on the anvil of circumstance. The light is a function of the effort; we make it bright as day if we hammer hard enough; but we shall never dispense with the need to hammer, or live by the light of sparks struck yesterday".

That passage goes to the roots of Britain's own difficulties to-day, and Sir Harold's comment that man was not made for leisure indicates where its relevance lies. Preoccupation with leisure rather than effort is responsible for much that is amiss in Britain to-day in the whole social and political climate, as well as in her economic and industrial situation. Even advances such as the computer and automation make possible bring their own challenge and the need to come to fresh terms with Nature; challenges that are not simply technical or economic but social and moral as well. In this interdependent world it may well be that the challenge of leisure will be met in part as we respond to the challenge of the underdeveloped countries—framed so clearly in the problem of food and population.

IMAGE OF CHILE

THE scientific advice and financial assistance which the United States has been giving to the Central and South American countries is now well known. This has applied especially to the development of agriculture, but now such assistance is converging into scientific collaboration—much to the credit of the United States, having profound scientific knowledge and the policy to give advice and financial help, and also to the wisdom of the other American countries concerned.

The most recent evidence of this desirable scientific collaboration was presented by a conference on "Science and Development in Chile", held in Washington, D.C., under the joint auspices of the Embassy of the Republic of Chile and the U.S. National Academy of Sciences, during October 5-9.

The President of the United States sent the following message to members of the conference:

"In this third year of the Alliance for Progress, it is gratifying to see scientists of Chile and the United States

sharing the fruits of their research in the Image of Chile Science and Development in Chile program, jointly sponsored by the Embassy of Chile and the National Academy of Sciences of the United States of America.

"The pressing need to apply the benefits of science and technology for the well-being of humanity makes it particularly appropriate that the scientists of our two countries work together in the spirit of hemispheric co-operation.

"To the distinguished scientists from Chile and to my fellow Americans who share our hopes and aspirations for the advancement of human welfare in all of the Americas, I bid a warm welcome and wish you every success."

Space will not allow a report of the symposium held, and the papers read, at the conference; but the closing remarks made by Mr. Dean Rusk, U.S. Secretary of State, and by the Ambassador of Chile to the United States are a source of inspiration to all countries, and therefore the substance of each speech is reported as follows.