Some of these are examined, one by one: in physical science, economics, history and literature. Despite the growing narrowness of specialization, there is among the leading scholars and inventors more community of interest, more concern with mutual affinities, more attention to the junctions or interstices of the different subjects than there was fifty years ago. This may be our last chance of an integrated culture, but it is probably our best for at least a hundred years. "However the arts and sciences may differ in their methods and materials, they are only the dependent branches of the single tree of knowledge, and it takes more than one of them or even two or three of them, to make the tree comely and whole." It is for all school and university teachers to give their pupils some glimpse of the single tree of knowledge as this is seen by those great scientists, philosophers, poets, prophets and artists who have had, and still have, the synoptic view of learning.

SCIENCE AND HUNGER

THE two basic facts of world hunger are first that half the present world population of 3,000 millions is hungry or malnourished, and, secondly, that the population is likely to increase to 6,000 millions by the year 2000, mostly in those areas where shortage of food is greatest. Yet we could eliminate hunger and prevent its recurrence, if only we applied to the full the knowledge we already have. With this as his basic text, Lord De La Warr summarizes the extent of this knowledge in his presidential address to Section M (Agriculture).

There is now a considerable amount of information about cultivation of soils, though much of it concerns temperate lands rather than the underdeveloped tropical lands. Nevertheless, the soil conservationist, soil chemist, soil physicist, mechanical engineer and others are able to advise us both on soils and on irrigation. The plant breeder can produce plants not only with greater yields, but also particularly adapted to special conditions, such as short or long growing seasons, drought and diseases and pests. Herbicides and insecticides can greatly improve yields, which may be worth several times the cost of the treatment; they can also prevent loss during storage, which may amount to as much as 30 per cent of the harvest.

Tools for cultivation can improve food production not only by making the labour force more effective but also by clearing, draining and preparing the land. Mechanization need not be elaborate, for quite simple improvements can make a considerable contribution. Our knowledge of animal nutrition allows far better yields of meat and milk. In addition, we know now how to control many animal diseases, both nutritional and infectious. Much infertility can be avoided, and animal genetics means that breeds can be improved so as to make them more suitable for a variety of environmental conditions.

There is every possibility that fishing could be made to give us 50 per cent more food from the ocean, without danger of over-fishing. It has also been shown that fish culture in fresh-water ponds can be a highly efficient way of producing food.

It is important to remember that increased food production implies the simultaneous application of all these branches of knowledge. Nevertheless, even if we produce enough food, we shall still find that there are many problems of ignorance and superstition which prevent proper nutrition.

Thus the most important question which arises is how to put across this knowledge, especially in countries with low levels of training and education. As with food production, the answer is again multiple. Perhaps the first task is to ensure the training of indigenous advisers. Farm institutes and agricultural and veterinary schools are necessary. School gardens can be used not only for teaching how to grow food, but also for teaching what foods to grow for good nutrition. Rural community development centres can also help, both in improving food production and in teaching nutrition. In many parts of the world, co-operative farming, efficiently run, has been found to increase food production, and to make the best use of scarce materials, both human and mechanical. Competitions between farms and communities, demonstration farms, and the use of modern techniques of instruction, have all proved useful methods of training.

It is commonly believed that food surpluses in some countries could be used for relieving food shortages in others. Such help can only be small in relation to needs, and in particular leaves the basic problem untouched, of improved food production where it is most needed. Now that the scientists have given us the knowledge, it is up to Governments, educationists, and indeed all of us, to help rid the world of hunger and malnutrition.

FACTS AND VALUES

THIS is the subject of Prof. Morris Ginsberg's presidential address to Section N (Sociology).

The distinction between facts and values is often presented in the form of a sharp antithesis. The philosophers tell us that from 'is' statements we cannot pass to 'ought' statements. Social scientists in their turn say that they are concerned with means and not with ends, or that they can (with luck) tell us what we can do but not what we ought to do. The impression frequently left is that values belong to a world of mystical intuition, or else have to be left in the end to individual choice or decision.

The discussion of the issues thus raised has been greatly influenced by the work of Max Weber. But his position is often misinterpreted. He did not think that the value judgments implicit in our choices and preferences were incapable of being intelligently investigated. On the contrary, it was of the greatest importance to bring out clearly the more remote ends and assumptions which they imply, to estimate the consequences, intended and unintended, likely to result from them and to consider the possibility of adopting new or different ends and assumptions. He did not realize how closely this procedure resembles that advocated by those who believe in the possibility of a rational ethic. In the end, his ethical outlook is sceptical and pessimistic. It seems to be his view that when the process of analysis has been carried to its terminus, it would be seen that in the last resort values are incommensurable and irreconcilable. No doubt he was led to this conclusion by the moral difficulties of power politics as he saw it in his own day. The individual is left to choose between the demands of an "ethic of consequences" and the demands of an "ethic of ultimate ends" which has to be accepted or rejected in its entirety, presumably as a

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