

unfashionable subjects are worthy of British agricultural policy research (right).

THROUGHOUT the crises of our time—the financial crisis, the troubles of society, the energy crisis—our idol, science, has remained unquestioned. Now the time has come to ask ourselves what science can contribute.

This is what has just been done in the field of human nutrition by a British committee convened jointly by the Medical and Agricultural Research Councils (MRC and ARC) under the chairmanship of Professor Neuberger. Its report is the collective testimony of a number of scientists with long and converging experience. Until now nutrition has appeared to be limited to certain specialised functions, to the study of deficiency diseases and to dogmatic ideas on diet. In fact, nutrition is not just a particular function of living beings; together with immunology and genetics, it is one of three universal concepts which relate human beings to their environment and to the society in which they live. There was a need to restore nutrition to its true dimension as a synthesis of sciences, a culture which stimulates and fertilises, and to get away from an approach which had become too purely analytical.

Why should it be surprising that it is the bread man eats which serves as the starting point for taking a new look at our attitude to science?

The disorganised state of our knowledge of nutritional science could not last. Nutritional requirements as laid down by the expert committees are a mass of contradictions, arising from a scarcity of facts which in any case have little meaning. For example, energy requirements represent the actual consumption of the reference man; yet this Apollo is a man of our industrial society whom we know to be too fat and who eats too much. On the other hand, protein requirement has a physiological basis, the minimum values having been derived from measurements made in the laboratory during brief experimental balance periods. No society actually lives at this level, however, since if energy requirements are met, even the simplest diet would provide surplus protein according to these standards. The values recommended for vitamins are saturation values which have no clear physiological meaning. Hypovitaminosis is rarely seen now, but nevertheless people are trying to use these recommended values

as a basis for labelling and advertising of dietetic products in the USA and in France. Supplementation with amino acids or iron has mostly been based on economic considerations.

In the field of diseases associated with nutrition, the inability of classical physiology to explain obesity is obvious. Measurements made over 10 minutes are extrapolated to 24 hours. The physiologist applies the law of surface area which is only valid to $\pm 30\%$; yet a systematic error of 10% would represent a weight change of 13 kg a year. The cause of degenerative disease of the heart and blood vessels has been attributed variously to the percentage of calories from fat, the ratio of EFA to NEFA, to sugar and to cholesterol. Yet this is a global state, a multifactorial syndrome, in which the causal factors are interdependent.

It is the ideas expressed in the Neuberger Report, the lines of thought, the strategy, which are important, not the details. The sergeant-major will always find something wrong with the buttons: there are no references, and some important points about dietary behaviour have been neglected, but the positive side of the report is such a relief and offers such hope that one can overlook the omissions. Doctors, biochemists, physiologists, agronomists, toxicologists, dietitians, the food industry and sociologists have all co-operated and succeeded in producing a unification of knowledge which is a truly significant synthesis.

This group of academics has emphasised the 'social' function of research in relation to the health of the individual and of the community and has tried to apply this research to a number of social and medical problems. To those of us who have lived for the last 10 years with the research policy of the Institut Nationale de la Santé et de la Recherche Médicale and of the Conseil National de Recherches Scientifiques, this report under the signature of Professor Neuberger is a bomb which will breach the ramparts.

The evidence given here shows nutrition as a special area of interaction between man and his environment. The problems of toxicity and pollution are looked at from the biochemical and physiopathological point of view and the metabolism of foreign substances has been dealt with in the same way as that of nutrients.

It is, however, at the molecular and cellular level of organisation that the most practical problems of medicine, of toxicology, of *l'alimentation* have to be solved. Again it must be realised that it is the synthesis, the common language, the ideas, which will allow specialists in each sector of this huge spectrum to understand one another clearly in order to produce the illu-

mination of which man and his society are in need.

Some of the principal nutritional problems have been mentioned as illustrations. It is not possible to summarise what is already a summary of 180 pages. This kind of committee does not usually adopt an attitude so widely based on biology, so critical and so positive. There are certainly many points for discussion, but there are so many positive suggestions that all nutritionists will be obliged to meditate on them. One is more stimulated by this report than by a classical scientific publication. It seems to me very possible and desirable that different national committees should take this document, study it in depth, fill the gaps and propose different approaches to certain points.

It is appropriate here to mention that the French effort, small though it is, operating through the Fondation Française de Nutrition and the Committee on Human Nutrition of the Centre National de Coordination des Etudes et Recherches sur la Nutrition et l'Alimentation, has embarked without previous consultation on a programme which, in proportion to its resources, is completely in the same spirit.

The topics selected are identical: nutrient requirements, an appraisal of the states of overnutrition (cardiovascular disease, obesity) and of undernutrition, a study of nutritional factors in infancy in relation to prevention of disease, toxicological aspects of food safety, and the dietary behaviour of individuals and communities. The spirits are ready and willing to work together; the means remain poor. The report from the UK is going to catalyse the timid French efforts.

To go even further, it would be desirable for Britain and France jointly to hold meetings and symposia on nutrition (once or twice a year to start with) at which points of view and communications of original work could be presented. The Nutrition Societies, the public bodies such as the MRC and ARC in the UK and the CNCRNA in France and the Nutrition Foundations could provide the impetus for such an arrangement. The first step would be the formation of a working group, aware of the present deficiencies of the subject and of the necessity to keep in touch all the time with the practical implications of food production and the maintenance of health and with fundamental research and the proper role of administrative and financial structures. The ultimate object would be to inspire research, and thus to develop a knowledge to use as a means in the service of the well being of the individual and the community. □