Nutrition and National Health.*

IN his three Cantor Lectures Sir Robert McCarrison expounds, with clarity and eloquence, the faith of the modern student of nutrition. He is not the type of scientific worker who ignores the wood in contemplation of the trees, or of a particular leaf on a particular branch of a particular tree. He never loses sight of the fundamental fact that well fed animals are strong and healthy and largely escape disease, while badly fed animals have a low vitality and poor physical development, and suffer from all manner of diseases which orthodox medicine ascribes to multifarious causes. It is an interesting reflection that hitherto man has not succeeded, except perhaps in rare instances, in achieving a thoroughly satisfactory adaptation to his environment in the matter of food. The " natural " diet of the savage is far from ideal; that of the grain fed peasant, who still forms the majority of the human race, still less so. Even the pastoral peoples do not achieve dietary perfection. Civilisation was made possible by the discovery and cultivation of cereal and leguminous plants producing food which can be stored in bulk. But plant seeds, even when unmilled, are not entirely suited to form the whole food of the human organism. The perfect human diet, in the modern sense, includes in addition to seeds a food which seems quite " unnatural," the milk of another species, and vegetables and fruits which have come into common use only in the last few centuries and which until quite recently were scanty except in certain seasons. The human infant in the temperate zone seems to require, for optimum development, a substance —vitamin D—obtained by organised industry from the liver of fish or produced by the artificial irradiation of foods. A perfectly nourished people would be a *new* creation, as much a product of experimental and applied science as television is a product of experimental and applied science. It would represent adaptation to environment on a different plane to that hitherto attained by man in his struggle to obtain enough food for mere survival.

Sir Robert McCarrison has done as much as any man to further this adaptation. In his lectures he describes various experiments which have led us to a realisation of the importance of proper diet. One striking experiment which was carried out in Coonoor is described.

" Many years ago (1918) when the newer knowledge of nutrition was in its infancy, I obtained some dozens of healthy monkeys from the jungle of Madras. Some I fed on faulty and ill-balanced food deficient in vitamins and mineral elements, others on perfectly constituted food. The latter remained in good health; the former developed gastro-intestinal ailments, ranging from gastritis and ulcer to colitis and dysentery, while one amongst them had a commencing cancer of the stomach. The passage of years has not dimmed the recollection of this crucial experiment nor detracted from the far-reaching importance of the results yielded by it. Indeed, there is, perhaps, no more significant fact in regard to the function of nutrition than that this highly specialised alimentary mechanism on which the nourishment of the body depends is itself among the most susceptible of the structures of the body to faulty nutrition."

(It is said that the descendants of the monkeys used in this experiment, or of those which survived to be subsequently liberated, still roam the woods and jungles in the neighbourhood of Coonoor. But that is by the way.)

The third lecture of the series deals with nutrition in relation to national health. The lecturer points out that in England standards of health and physique are far from satisfactory and that great improvement might follow the increased consumption of " protective " foods such as milk and green vegetables. He quotes the experience of Sir Pendrill Varrier-Jones at the Papworth Village Settlement for the subjects of tuberculosis " In this village of 400 persons no child born there during the twenty years of its existence has, while a member of the community, contracted tuberculosis of the lungs, bones, joints, cerebral membranes, nor indeed any clinical form of the disease. Yet these children are the offspring of parents who suffer from tuberculosis and are in constant contact with them." One of the most important factors in bringing about this remarkable result is that the diet of young children born in the village has been carefully supervised.

Sir Robert McCarrison declares that Miss Margaret McMillan's book *The Nursery School*, which describes the regeneration of children of the poorer classes by good feeding and careful management, should be " an obligatory text-book for every student of medicine." He conveys here and there the suggestion that orthodox medicine, as taught in the medical schools, has been slow to adapt itself to changing views about health and disease. The now obvious fact that a large proportion of disease has its primary cause in poverty, which is associated with all manner of environmental stresses and in particular with diet deficiency, should certainly be more generally realised. Improvement in the health of a people runs parallel with improvement in their economic condition. The efficiency or otherwise of curative medicine is a factor of minor influence, however important it may be to the comfort and happiness of the individual.

W. R. A.

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* " Nutrition and National Health." Major-General Sir Robert McCarrison, C.I.E., M.D., D.Sc., LL.D., F.R.C.P. Cantor Lectures. *The Journal of the Royal Society of Arts*, 1936, **34**, 1047–83, 1087–1106.