



Sir Edward Mellanby (1885-1955)

The death of Sir Edward Mellanby—a corresponding editor of this JOURNAL—removes an historical figure from the field of nutritional research in Britain. He was born a north-country Englishman. An athlete in his youth, he gave up sport on entering Cambridge University and published his first paper (on creatine) while still a medical student. With the support of Gowland Hopkins he began to study rickets and in 1918 succeeded in producing it experimentally in puppies. He was inclined at first to attribute it to lack of the fat-soluble vitamin (A) described as a growth factor five years previously by McCollum and Davies. But once experimental rickets had been produced, the distinction between vitamin A and vitamin D quickly followed. Mellanby continued to be interested in the reason why cereals (and especially oatmeal) encourage the production of rickets. The culmination of his research on this subject was his identification in 1937 of phytic acid as the substance in cereals that interferes with the absorption of calcium from the gut. This opened the way to the modern study of vitamin antagonists. He made important experiments on the effect of vitamin A deficiency on the growth of the skeleton, and elucidated the mechanism whereby the nerve roots of the spinal cord may be damaged by irregular development of the bones. Then, in 1947, he announced the surprising discovery that fits in dogs are caused by a toxic substance produced in the agene process of bread-making; this opened up in Britain the whole important subject of potentially poisonous substances that may find their way into food.

In 1933 Mellanby became Secretary of the (British) Medical Research Council. For any lesser man this would have spelled the end of research and the beginning of a busy life of full-time administration. Yet Mellanby continued his own research throughout the whole time of his tenure of this arduous office. At weekends he would leave the M.R.C. offices in London and travel to the quiet seclusion of his own laboratory in Sheffield. The M.R.C.

did not suffer. Mellanby's belief was that in so far as research can be organized at all, it is best that it should be organized by someone actively engaged in it. Under his guidance the M.R.C. was nourished through its period of adolescence into the adult giant that it is today. The increasing interest of the Welfare State in medical research made the growth of this organization inevitable, but the particular way that it has grown is in no small part due to Mellanby. One unique feature, which may well be envied in the United States, is that although the Council administers public funds, it is not directly answerable to the politicians in the House of Commons in its use of them.

In the 1930's Mellanby was also active in international work on nutrition. As chairman of the Technical Commission on Nutrition of the League of Nations, he did much to promote the international standardization of vitamins and the publication (in 1936) of the first agreed standards for dietary requirements.

The outbreak of the Second World War brought a huge load of new responsibilities. Mellanby stayed at his desk in bomb-damaged Westminster, accessible to everyone concerned with the special medical problems of war. At such interviews his manner was blunt and sometimes impatient; yet behind it there was always a background of kindly humor. A few short, shy, sensible words sent the visitor away encouraged. The achievements of the M.R.C. during the war have since been fully reported; they include the scientific control of feeding a country during a time of threatened siege. Through the Scientific Food Policy Committee of the War Cabinet Mellanby exerted a strong influence on the introduction of such measures as the fortification of margarine with vitamins A and D and the addition of calcium to the wartime loaf of bread. He was also chairman of the Food Rationing (Special Diets) Advisory Committee which, throughout the period of rationing, ensured the co-operation of the medical profession by granting special rations to patients under treatment. It was fortunate indeed that the Secretary of

the M.R.C. at this time had a lively personal interest in nutrition.

The War left Mellanby a tired man. It was therefore a happy idea on the part of Vanderbilt University to invite him to Nashville as a visiting lecturer. This visit he hugely enjoyed. He returned to Britain relaxed and benevolent, with all his war-time troubles shed. As he himself said to the present writer: "They taught me how to laugh again."

With his retirement from the M.R.C. in 1949, he devoted his time to his old love, re-

search. At the M.R.C. Nutrition Laboratory, Mill Hill, which he himself had done so much to create, he died suddenly on Sunday, January 30, having been engaged in an experiment an hour before.

He is survived by his wife, Lady May Mellanby, who herself has made important contributions to the study of nutrition, notably in connection with dental health.

—A. P. MEIKLEJOHN, M.D.
University of Edinburgh,
Scotland

Letter to the Editor

IN REPLY TO COMMENTS IN *Nutrition Reviews*

Dear Sir:

A recent report from this laboratory (J. CLIN. NUTRITION 1: 224, 1953) was the subject of comment¹ which, it seems to us, may lead to misunderstanding unless the points raised are specifically answered.

The writers of the review¹ infer that adequate nutrition in terms of good muscle mass, nitrogen equilibrium, or weight equilibrium, is impossible on diets containing only protein and fat. In Figure 1 is shown a long-term balance study in an elderly male who was maintained for more than six months on a formula diet in which the caloric sources were entirely protein and fat. Without any hormonal therapy, nitrogen and weight equilibrium were achieved, followed by weight gain and positive nitrogen balance during the administration of anabolic steroid hormones. These and other similar data are included in papers dealing with the evaluation of specific anabolic steroids and with pituitary growth hormone.^{2,3}

Regarding the statement in the review: "The palatability and the practicability of a high fat-high protein diet has been repeatedly examined with human subjects, and in each instance found unsatisfactory"—there is no question that a diet containing only protein and fat would have little to recommend it,

from the standpoint of palatability. Fortunately, the presence of amounts of carbohydrate sufficient to provide for palatability are still thoroughly compatible with major falls in serum cholesterol when suitable mixed diets are used. By way of illustration of this statement, in Figure 2 is shown the change in serum cholesterol and phospholipids in a severely diabetic patient maintained on a mixed diet containing large amounts of vegetable fat, who over a period of about one month had a decrease in serum cholesterol levels of approximately 400 mg per 100 ml.

It has been said that physical intolerance, with ketosis, rather than anorexia, prevents the success of this diet. In Figure 3 is shown a study designed specifically to bring out the "antiketotic effect of protein" under quantitatively controlled conditions on the metabolic ward. From this it is apparent, as one would expect in view of the relatively small amount of carbohydrate necessary to "turn the metabolic wheel," and the amount of carbohydrate which can be derived from protein, that protein would be a perfectly satisfactory substitute for carbohydrate in an antiketotic sense, so long as one has a proper balance of protein and fat.

Also not mentioned in the review was the fact that Ahrens *et al.* at the Rockefeller Institute have fully confirmed our observations regarding the profound decrease in serum cholesterol and phospholipids in patients maintained on high intake of vegetable fat.^{4,5}