

In the short-run compensation for acute oxygen shortage, Major Dill listed four steps by which the balance is temporarily maintained: the reduced oxygen in the arterial blood stimulates increased breathing by the action of the carotid body, a small emergency mechanism lying beside the carotid artery (in the neck); this raises the oxygen content of the blood, but causes an increase in alkalinity; this excess is absorbed through the buffering capacity of body proteins, thus relieving the inhibition which alkalosis characteristically exerts on the respiratory centre in the brain, producing a balance between the activity of the respiratory centre and the carotid body.

The chain of events involved in acclimatization (as contrasted with short-run compensation) has been seen to involve a series of reactions:

(1) Lactic acid in the blood remains unchanged while at rest.

(2) After the first few hours of adjustment, the saturation of oxygen in the arteries attains a constant level.

(3) Lung ventilation is maintained at an increased rate.

(4) Arterial blood, after initial alkalinity, eventually assumes its usual reaction.

(5) Both free and combined carbon dioxide in the blood are reduced, but the ratio between

them (which governs the respiratory centre) is eventually restored to its usual value.

Taking part in these reactions, Major Dill pointed out, are the lungs, the respiratory centre, the carotid body, the blood-forming tissues, and the kidneys. The over-all result is that man, without taking thought, is enabled to live and work in an atmosphere that contains only half as much oxygen as at sea-level.

Although in experiments in which atmospheric pressure was reduced to one-sixth its sea-level value, the exchange of gases in the lungs goes on as usual, it must be admitted that the possibility of a disturbed acid-base balance exists at any altitude above thirty thousand feet if the period of exposure is long enough. Decompression illness, or bends, may be experienced. If this affection becomes acute, one sees increased respiratory volume, and unless return to lower altitude is prompt there may be circulatory failure and collapse.

The symptoms here seen are like those of shock at ground-level. The stimulus to the respiratory centre presumably originates from a diminished blood supply to the brain and the accumulation of carbonic acid in the respiratory centre. With return to low altitudes, relief is usually prompt.

OBITUARIES

Dr. E. S. Beaven

THE passing on November 12 of Dr. Edwin Sloper Beaven at the age of eighty-four, after a brief illness, will be deeply regretted by a wide circle of friends in Great Britain, and by many in other countries to whom he was known either by personal contact or through his published works.

Dr. Beaven was born near Heytesbury in Wiltshire, and for the greater part of his life resided in the neighbouring town of Warminster, where he carried on the business of malting. Early in his career Beaven became associated with Messrs. Arthur Guinness, Son and Co., the celebrated brewers, an association which influenced the science of brewing, and more particularly all aspects of barley production in the British Isles, in a remarkable manner.

As a maltster the involved question of quality in malting barley attracted Beaven's inquiring mind, and one of his earliest investigations, carried out in collaboration with his friend Dr. J. M. H. Munro, dealt with conditions influencing this important attribute.

But Beaven came of yeoman stock, and it was not long before the convictions engendered by such an ancestral background led him to extend his investigations to the many questions affecting the production of barley. Thus, starting first in the garden of his

residence, and later on a more extended scale on land acquired for the purpose, Beaven began a series of nursery and field experiments, now world-famous. These investigations, started on his own initiative, and continued for a period of more than half a century, entirely at his own expense, were a consuming interest throughout his long life. Largely because of the care in execution and then in the clarity of exposition of the results derived therefrom, the experiments at Warminster have for many years been a source of inspiration to visitors from all parts of the world.

One of the most valuable features of the material gathered together at Warminster with meticulous care and patience, was a world collection of species and varieties of barley. This material eventually formed the basis of an authoritative classification of the genus, published by Beaven in 1906, which remains a standard exposition of the subject.

Beaven's most active years coincided with the reappearance of Mendel's theory of heredity, and he applied the new conception enthusiastically in the production of improved varieties of barley. Early in the century he began a long series of hybridizations that culminated in the production of the now well-known and widely grown variety Plumage-Archer. This barley, which will always be honourably asso-

ciated with Beaven's name, exemplifies one of the few successful attempts to secure high grain productivity, allied with high malting value.

In the course of the development of Plumage-Archer, the necessity of a small-scale system of yield testing became insistent. To this Beaven applied himself with characteristic thoroughness, and eventually evolved the chequer board system, which with some modification is now widely employed by plant breeders, and later the drill-strip system for testing larger quantities of material on a field scale.

Beaven's interest in all aspects of barley production, both at home and abroad, was unbounded. No journey was too long, if at the end he could see something new or verify the basis of some conclusion he had arrived at. His audience was consequently always a large one, and because of his enthusiasm, always appreciative.

Despite the many calls of his business, Beaven took a keen interest in all activities directed to the improvement of agriculture; to which he himself had contributed so signally. He was present as a member at the first council meeting of the National Institute of Agricultural Botany in 1919. In 1929 he was elected chairman of the Council; he served again in the same capacity in 1939, and owing to the outbreak of war retained this position during 1940, and up to the date of his death. In 1932 he was chairman of the Farmers' Club.

Beaven's work in furthering the science of crop improvement was recognized by the University of Cambridge, from which he received the honorary degree of LL.D. in 1922. He was awarded the Horace Brown Gold Medal by the Institute of Brewing in November 1930.

Beaven's personality will remain a vivid memory

to his friends and acquaintances. Apart from a boundless enthusiasm for his particular subject, his outstanding characteristics were a directness of approach to a problem, an independent outlook, and a fearlessness and tenacity in maintaining his point of view. He possessed a keen sense of humour, and although always severely critical, his generosity of feeling, particularly to youth, was unailing.

Beaven owed much to the influence of a happy family life, and sincere sympathy is extended to his widow and to three daughters who survive him.

HERBERT HUNTER.

We regret to announce the following deaths:

Prof. Phillippo Bottazzi, formerly professor of physiology in the Universities of Genoa and Naples, aged seventy-four.

Prof. Carrie M. Derick, emeritus professor of morphological botany and genetics in McGill University, on November 10, aged seventy-nine.

Prof. H. S. Hower, head of the Department of Physics in the Carnegie Institute of Technology, on October 10, aged sixty-four.

Dr. J. A. Nelson, formerly research entomologist in the U.S. Department of Agriculture, on August 9, aged sixty-five.

Prof. W. A. Noyes, emeritus professor of chemistry in the University of Illinois, on October 24, aged eighty-three.

Dr. J. S. Owens, well known for his work on atmospheric pollution, on December 6.

Prof. Peter Sandiford, professor of educational psychology in the University of Toronto.

Prof. Hans Spemann, professor of zoology in the University of Freiburg-im-Breisgau, aged seventy-two.

NEWS AND VIEWS

Administration in International Affairs

THE Sydney Ball Lecture on "Administrative Problems of International Organization", delivered by Mr. F. P. Walters, which has now been published as Barnett House Paper No. 24 (Oxford University Press. 1s. net), is highly relevant to the tentative discussions on post-war international reconstruction which are now proceeding. On the grounds both of efficiency and economy, the advantages of a central organization at the service of all the special staffs required are obvious, and Mr. Waters postulates further that some such centre as Geneva and an annual meeting similar to the assembly of the League of Nations, as well as the secretariat, will be required before dealing with the special problems of administration concerned with the organization of an international centre and its relations with participating Governments. He stresses first the value of a separate department for League affairs, the need for which would have been more apparent in Great Britain but for the general efficiency of the Civil Service and the

exceptional ability and energy of officials in the Foreign Office—a tribute from a League official which should be noted. He suggests further that the League budget should include an appropriation for ten or fifteen officials to be seconded each year from the Foreign Offices of different countries to spend six months or more in the secretariat, and he lays a great deal of emphasis on the advantage of cost of membership of committees, travelling expenses of delegations, general expenses of council meetings, the Assembly, and of conferences or special commissions being borne by the League budget as a whole and not by individual States. Similarly, he urges that assistance and advice given through the League or the International Labour Organisation should generally be regarded as a proper charge on the common budget.

The main point throughout Mr. Walters's review of the administrative side of international organization is that such work should be adequately financed. To starve it as has been done in the past may have