

Of course, such 'mosaic' processes as the Dufay colour, and nearly all natural colour processes, do not seek such a correspondence between source and image, but only that the image should closely resemble the source to the eye. As a given hue to the eye may be produced by more than one combination of homogeneous radiation, it does not follow that a colour photograph satisfactory to the eye would be equally satisfactory to the spectro-scope, and so far no commercial process satisfies this latter test. But at least a 'mosaic' colour photograph can have the same sort of value that a set of ordinary photographs taken through filters has, and represents a coarse spectro-photometric survey.

Dr. Gardner in his article does not state explicitly whether any steps were taken to make photometric measurements, but by implication something of the sort was contemplated. If it should prove practicable—and these first results of Dr. Gardner's hold high promise—to conduct even rather rough eclipse spectrophotometry in this fashion, then a new technique of great value will be at our disposal. It is too early to express any opinion on the possibilities of this method, but Dr. Gardner is to be congratulated not only on his luck in obtaining clear skies at Ak Bulak, but also on his enterprise and his technical skill in securing these photographs.

Obituary Notices

Dr. W. Maldwyn Davies

BY the sudden and tragic death on February 17 of Dr. W. Maldwyn Davies of Bangor at the age of thirty-four years, entomology, and notably economic entomology, has suffered a grievous loss. Dr. Davies graduated with first-class honours at the University College of North Wales, Bangor, in 1925, and after two years at the Rothamsted Experimental Station he returned to the College in 1927 as adviser in agricultural zoology for North Wales, an appointment which comprised not only duties of a purely advisory character but also to no small extent investigation and research. For this post Davies, with his intimate knowledge of Welsh farmers and Welsh farming, was exceptionally well qualified, as evidenced by his work in connexion with the warble fly, in which science and practice were so happily combined.

Even more outstanding, however, was the research work that Davies was able to carry out in the brief period of ten years. Most notable perhaps was his contribution to our knowledge of the ecology of the aphid *Myzus persicae* and its relationship to the spread of the virus diseases (mainly leaf-roll) of the potato. Starting from the discovery made by his colleagues, especially Dr. T. Whitehead, that in certain parts of North Wales potatoes could be grown from year to year without the introduction of fresh seed and without appreciable increase in the incidence of virus disease, Davies began a study of the aphid vectors of these diseases. By investigating the population of the aphides in the field, he was able to show that there is a significant difference in the numbers of aphides on farms where healthy seed potatoes could be grown and on those where they could not, a difference which in itself explained the varying incidence of virus disease. At the same time, the important discovery was made that the source of infestation each year was not overwintered eggs on various species of Rosaceae, but aphides in the

apterous stage overwintering on Brassicas, particularly Savoys, and it was concluded that winter Crucifers provide the main source of *M. persicae* in spring.

The next step was to discover the factors that control the aphid population, and by a combination of laboratory and field work, Davies was able to show that the numbers of aphides in any district depend in part on the proximity of winter host plants but even more on the climatic conditions during the periods of migration. It was found that the aphides are unable to fly when the atmospheric humidity exceeds a certain maximum, owing to the effect of moisture on the wing membranes. It was also found that strong winds, instead of favouring migration, cause the insects to remain *in situ* on the host-plant. The potato-growing areas of North Wales could thus be differentiated on purely meteorological grounds into districts in which the transmission of virus disease would be facilitated by the presence of abundant vectors and those where it would not.

The last stage of the investigation, to establish whether the facts that held good in North Wales were also true of Great Britain as a whole, was already under way, and a visit to Scotland last year was to have been followed this year by a trip to Devon and Cornwall. This conclusion of the work must now be left to others, but Davies's contribution will remain a model of what such an investigation should be, and it is likely to rank as classic in its particular sphere.

Davies was not concerned only with the insects that attack plants, and his work upon the pests of farm animals, notably upon the sheep maggot flies, was of little less importance. At the instance of the Agricultural Research Council, he had recently had the co-operation of a biochemist (Dr. R. P. Hobson) in an investigation of these latter pests—a collaboration that had already produced valuable results and held out great promise of further success.

Davies's official work was thus primarily concerned with agricultural entomology, for which he had a special flair, but his interests nevertheless were not confined to this aspect of his subject. His earliest publications dealt with certain species of Collembola as pests of agricultural crops, and he was so attracted by these insects that he also found time to establish for himself a wide reputation as an authority upon them; many of the collections made by recent expeditions overseas passed through his hands for identification. He had in course of preparation a systematic key to the identification of the British species, which it is hoped is sufficiently advanced to render publication possible.

As a man, Davies was beloved by all who knew him, and he will be greatly missed by entomologists everywhere, and notably by his colleagues and friends in the agricultural services.

J. C. F. F.

WE regret to announce the following deaths:

Joseph Auclair, *correspondant* of the Section of Mechanics of the Paris Academy of Sciences.

Prof. Cyrus R. Crosby, professor of entomology in Cornell University, on January 11, aged fifty-eight years.

Prof. J. H. F. Douvillé, formerly professor of palaeontology in the National School of Mines, Paris.

Sir Albert Kitson, C.M.G., C.B.E., director of the Geological Survey of the Gold Coast in 1913-30, on March 8, aged sixty-nine years.

Prof. C. J. Lewis, emeritus professor of public health in the University of Birmingham, on February 6.

Prof. F. P. F. Ransom, formerly professor of pharmacology in the University of London, on February 22, aged eighty-seven years.

News and Views

Sir Joseph Barcroft, C.B.E., F.R.S.

SIR JOSEPH BARCROFT retires this year from the chair of physiology in Cambridge to which he succeeded on the death of Langley in 1925. Throughout an active life, Sir Joseph has played a prominent part in maintaining the high tradition of the Cambridge school of physiology. He has made many important contributions to knowledge, and has taught others to do the same, but his greatest contribution to physiology has been through his indirect influence on younger men. His enthusiasm, his good humour, his attractive style of writing and speaking, and his unusual gift for putting the results of profound thought into simple language, have inspired many with a love of physiology which has influenced them throughout their lives. As head of a large laboratory, he has found time to take a friendly interest in many different investigations without actively interfering with the natural development of the ideas of his colleagues.

THOUGH he is not a medical man, much of Sir Joseph's work has been with human subjects, and much of it has had a dramatic quality that has made him widely famous. His early investigations were concerned mainly with the carriage of oxygen by blood, and with the chemical changes in organs such as the salivary glands and the kidneys which were found to use more oxygen during activity than during rest, and to liberate metabolites which controlled their blood supply. In order to study the gases in small samples of blood, or other tissues, he invented a differential manometer which is widely known as the Barcroft apparatus. For many years, he represented Cambridge against Oxford in favour of the view that the passage of gases through the epithelium of the alveoli of the lungs was a simple physical process and that, even under adverse conditions, the lungs could not take

up oxygen unless the oxygen pressure in the air was greater than that in the blood. In support of this conclusion he led expeditions up high mountains, and exposed himself to low oxygen pressures for many days in a glass box in Cambridge. In more recent years he has shown, by striking experiments, that the spleen plays an important part in the circulation as a reservoir of blood, which is released in emergencies, and he has added much to our knowledge of the oxygen supply to the foetus *in utero*, and other allied subjects.

Prof. E. D. Adrian, F.R.S.

PROF. E. D. ADRIAN, who succeeds Sir Joseph Barcroft to the Cambridge chair, has also spent all his scientific life in Cambridge, where he is now a Foulerton research professor of the Royal Society. Before the Great War he worked with Keith Lucas on the problems presented by the impulses in motor nerves. He then left Cambridge, obtained a medical qualification, and quickly showed that he could have been a very successful clinician. He was R.M.O. at the National Hospital, Queen Square, and during the War he had experience of the treatment of shell-shock. In 1919, he returned to Cambridge and started his well-known work on the physical basis of sensation. All knowledge depends on the brain's analysis of impulses arriving in sensory nerves. Adrian took advantage of the new methods for amplifying small electric currents and tapped the messages in the nerves. He has thus analysed the activity of sense organs in a way that was not previously possible. In recognition of this work he received, with Sir Charles Sherrington, a share of the Nobel prize for medicine in 1932. He is now called upon to spread his interests more widely than in the past, and to devote his clear brain and ready understanding to helping investigations in many branches of physiology.