

be four times as accurate as a corresponding group-feeding trial. The question of the protein requirements of pigs received early consideration. It was demonstrated that equally good results could be obtained, from the point of view of growth, economy of food conversion and carcass quality, when all-meal rations supplying only 7 per cent of white-fish meal were fed, as with diets much richer in protein. Moreover, it was shown that if the protein-rich concentrate was omitted altogether from the diet after 90 lb. live-weight, it was without the slightest effect on the rate of live-weight gain or on the leanness of the carcass. Considerable economies were therefore possible in the use of white-fish meal, which proved of great importance when supplies were short. The replacement of animal protein by vegetable protein plus minerals was also investigated.

On the death of Prof. T. B. Wood in 1930, Woodman became responsible for the sixth edition of "Rations for Livestock", the best-seller among the *Bulletins* of the Ministry of Agriculture. It became imperative in 1948 that the *Bulletin* should be almost entirely rewritten, and from this date Woodman assumed full responsibility as author. Woodman was also the author of the other bulletins—"Home Grown Feeding Stuffs" and "The Use of Oil Cakes and Extracted Meals"—which have lately been out of print. Finally, mention should be made of his contributions to *Agriculture*, during the War, of "Notes on Feeding Stuffs", which gave the results of research work at Cambridge and elsewhere, and were greatly appreciated by farmers and others.

No account of the work of Woodman would be complete without reference to his ability as a teacher. His great joy in life was in lecturing to the degree class at Cambridge. He was a born teacher and took infinite pains in the presentation of the material and had the gift of making a difficult subject seem easy.

He leaves a widow, a son and daughter, and a grandson.
R. E. EVANS

Dr. H. Wormald

HARRY WORMALD, who died at his Maidstone home on December 10 last at the age of seventy-six, was distinguished for his pioneer work, over the past forty-five years, on the pathology of fruits and hops, and more particularly for his original researches on the two important groups of diseases, brown rot (*Sclerotinia* spp.) and bacterial canker (*Pseudomonas mors-prunorum* and *Ps. prunicola* Worm.), in both of which fields he became an authority of international repute.

Born a Yorkshireman, he first trained as a school-teacher and for eight years taught a general curriculum in schools in Bradford and Leeds. It was therefore not until he was thirty years of age, in 1908, that with a Board of Education scholarship he went to London to read botany at the Royal College of Science (Imperial College of Science and Technology) under Prof. J. B. Farmer. Three years later he gained his A.R.C.S. and also the B.Sc. degree of the University of London with honours; and after a further year of research at the Royal College of Science, when he was awarded the diploma of the College, he went in 1911 to Wye College in Kent (University of London) as assistant in the Botany (Mycology) Department under E. S. Salmon. The dominating interest in fungal and bacterial diseases

of fruits and hops which Wormald developed at Wye is reflected in the award of the D.Sc. degree in 1919 for his early publications on brown rot, and in his transfer in 1923 to the then young East Malling Research Station as the first head of its Plant Pathology Section. There he worked for twenty-two years under the inspiring directorship of R. G. Hatton, and as the beloved chief and mentor of a long succession of postgraduate students and colleagues. It was at East Malling that Wormald consolidated his early work on the brown rot and crown gall diseases, and initiated the brilliantly original etiological studies on the bacterial canker diseases of the stone fruits.

In 1936 Wormald was appointed assistant director at East Malling, and for ten years, from 1935, he edited the Station's Annual Report. In 1940 he became president of the British Mycological Society and was joint editor of the *Transactions* of that Society during 1931-45. He also served as a member of the Council of the Association of Applied Biologists (1937-39) and as a vice-president (1938-39).

In 1945, in his sixty-sixth year, Wormald finally retired from East Malling, and in the same year joined the staff of the Commonwealth Bureau of Horticulture and Plantation Crops, stationed at East Malling, where for seven years he exercised his linguistic gifts (he could translate fluently from seven languages, including Russian) as an abstractor of world horticultural literature.

In 1952, at the age of seventy-three, Wormald was obliged to retire from the Bureau because of the illness to which three years later he was to succumb, only, however, to continue at home, with the quiet and patient tenacity of purpose which characterized his whole research career, the preparation of new editions of his two principal works, the monograph "The Brown Rot Diseases of Fruit Trees" (Ministry of Agriculture and Fisheries), and the standard textbook on his subject, embracing the impressive corpus of his original research papers, "The Diseases of Fruits and Hops" (Crosby Lockwood and Son, Ltd.). With the devoted and unflagging support of his wife, these immense tasks were brought to a successful conclusion, and within six months of the publication of the new edition of his text-book he died.

R. V. HARRIS

Mr. F. W. K. Gervers

FRANK WALTER KITCHENER GERVERS was born on April 17, 1920. He went to school at Bradfield, where he became an enthusiastic member of the School Natural History Society and published a paper of unusual quality for a schoolboy on the biology of a small stream. When he left school in 1939 he followed a family tradition and joined the Regular Army. He served in the Royal Artillery in North Africa, Italy and India; but his active military career was terminated by ill-health in 1946 and he decided to resume his interest in biology.

Gervers went to the University of Glasgow and during vacations worked in the laboratories at Pitlochry, Aberdeen and Lowestoft, and went to sea on the research vessels. After graduating he worked for a year with Dr. H. D. Slack on the biology of Loch Lomond, studying particularly the white fish or powan found there. In 1953, he joined the freshwater fisheries staff of the Ministry of Agriculture and Fisheries and carried out a most useful study of the food of coarse fish. He also took a large part in the

work on the migration of sea trout and had begun an investigation into racial characteristics of salmon. His death on the last day of October 1955 deprived all who knew him of a much-valued friend and cut short a scientific career of great promise. He left a

widow and two small children to whom he was devoted, and we extend our deepest sympathy to them.

F. T. K. PENTELOW

[A communication of which he was part-author appears on p. 664 of this issue of *Nature*.]

NEWS and VIEWS

Refractories Technology at Sheffield :

Prof. J. White

THE firm of J. and J. Dyson, Ltd., of Stanington, manufacturers of refractory materials, has given £15,000 to the University of Sheffield for the establishment of a chair in refractories technology, which the University has named the Dyson chair of refractories technology, and Dr. James White, reader in ceramics in the University, has been appointed the first holder. After graduating in physical chemistry from the University of Glasgow in 1931, Dr. White did metallurgical research at the Royal Technical College, Glasgow, and later became lecturer in metallurgy there. In 1939 he was awarded the Carnegie Gold Medal of the Iron and Steel Institute. He left the College in 1943 to become head of research of General Refractories, Ltd., and three years later went to the University of Sheffield as senior lecturer in refractory materials, being appointed reader in ceramics in 1952. Dr. White has published a large number of research papers and is a recognized authority on the chemistry of ceramics and refractory materials. The creation of the new chair, which is the first such one to be established in Great Britain, and of a separate department specializing in the subject, should do much to further the advancement of knowledge in a field of great importance to the steel industry of Britain, and especially the industries of the Sheffield district.

Botanical Survey of India :

Dr. G. S. Puri

DR. G. S. PURI, formerly ecologist at the Forest Research Institute, Dehra Dun, has been appointed regional botanist-in-charge of the northern circle of the Botanical Survey of India. In 1938 he came under the influence of Dr. R. R. Stewart and joined him in the explorations of the Kashmir, Hazara and Murree Hills, and collected extensively. In 1940, at the invitation of Prof. B. Sahni, he joined the Botanical Department of the University of Lucknow and worked on the flora of the Karewa formations of Kashmir, for which he was awarded the Ruchi Ram Sahni Prize for the best research in the University. He has conducted extensive geological and botanical explorations in the Kashmir Himalayas and discovered fossiliferous strata. During 1942-45 he worked on the correlation of oil-bearing strata in the Assam Tertiaries by micro-fossils for the Burmah Oil Co., Ltd., a pioneer work in India. In 1945 he was selected by the Government of India for training abroad in ecology and systematic botany and worked in the University of London under Prof. W. H. Pearsall. He is secretary of the Indian Council of Ecological Research and the Society of Tropical Ecology.

Research at Fort Dunlop, Birmingham :

Mr. E. A. Murphy

MR. E. A. MURPHY, general development manager at the Research Centre, Fort Dunlop, Birmingham,

has been appointed director of research in charge of the central research division of the Dunlop organization. Mr. Murphy, who, for his services to the rubber industry, has been awarded the Colwyn Medal by the Institution of the Rubber Industry, joined the Dunlop chemical laboratories during the First World War. One of the activities of the general development division set up under him during the Second World War was the investigation of synthetic rubber manufacture. A pilot plant was then started and this led to the designing of the experimental plant for synthetic rubber production now being erected at the Research Centre, which has enabled Dunlop to take the leading part in the project for the large-scale manufacture of synthetic rubber in Britain by the recently formed International Synthetic Rubber Company.

Government Pressures on the Press

THE International Press Institute, Zurich, has published as Survey No. 4 a study on "Government Pressures on the Press", which displays clearly but objectively the gravity of attacks that have been made on the freedom of the Press, even outside the totalitarian States, and the dependence of effective defence against such attacks upon an informed public opinion. The reasons which may lead even a liberal-minded government to desire the Press to exercise some restraint on publication are fairly indicated; it is emphasized that the Press is not above the law and that, although ideally the freedom of the Press should be complete, in practice this has to be qualified, nor can governments be indicted for not tolerating attacks which might endanger their existence. The first part of the study analyses pressures based on the law, the second those of an economic, administrative or purely political nature, and the third part in particular shows that the scientific and technical Press is no more immune from such pressures than the newspapers. The Institute is particularly concerned about the situation in South Africa, and especially because of the public apathy to successive government enactments during the past five years which have made the position of the Press there most precarious. In Australia and in India there are restrictive laws which are potentially dangerous; though they are not likely to be so applied by present or viable governments. The value of the study lies in the assembly of a large amount of factual material in convenient form and in indicating the nature and causes of the present threats to freedom of the Press. By and large, they arise less from the spread of illiberalism than from the growth of government and the domain of official policy in a divided and uneasy world.

National Research Development Corporation of India : Report for 1954-55

THE National Research Development Corporation of India was registered on December 31, 1953, its main function being to stimulate the development of