Regan looked upon this genus as a survival from the base of the flatfish stem, to Chabanaud it was the latest departure from the path of percoid symmetry, and the more specialized soles and flounders were the modern twigs of earlier asymmetrical branches of the pre-percoid trunk. The fossils so far do not help to resolve this difference, for as Chabanaud himself was to describe, the main groups were already differentiated in the Upper Eocene.

The majority of Chabanaud's numerous publications after 1936 were on details of the morphology and classification of these asymmetrical fishes, in which he found an endless fascination. He applied to them a terminology of his own, which, in spite of its logical classicism, is unlikely to supersede current usage, which has 'just grown'. It was his ambition to write the second volume of the monograph of the flatfishes begun by J. R. Norman, but he began too late in life to analyse the many samples of soles and tongue-soles available to him and never arrived at a satisfactory synthesis.

Up to the eve of his last illness, Chabanaud would leave his flat in the Rue des Écoles at 8 a.m. and walk, painfully of late, to the laboratory in the Rue Cuvier to count more fin-rays and scales and cover more sheets with his endless tables. How I wish that in some Elysium it might be given him to draw from them the crystal truths that he was sure they would eventually yield! He could be a charming host, and one of his most engaging accomplishments was the relating of reminiscences, plunging into parenthesis after parenthesis without faltering in the elegant use of his mother-tongue and never failing to emerge triumphantly in the end as from a series of Chinese puzzle-boxes.

He was quite unworldly, a man of child-like integrity and innocence of mind. He is survived by his second wife, with whom he spent many years of mutual devotion. E. TREWAVAS

Prof. J. T. MacGregor-Morris

PROF. J. T. MACGREGOR-MORRIS died on March 18, at the age of eighty-seven. He established the Electrical Engineering Department at East London College (now Queen Mary College) in 1898, and he became the first professor of electrical engineering in this College, a position which he held until he retired in 1938.

He received his education in electrical engineering at University College, London, and, for a time, was personal assistant to Sir Ambrose Fleming. He was keenly interested in research and during the Second World War he did notable work in developing a hydrophone for submarine detection.

An important contribution to electrical engineering education by Prof. MacGregor-Morris was the manner in which during the lean years immediately following the First World War he kept research work alive in his department, despite meagre equipment and small research funds. He kept the department open on three evenings a week, and he inspired and directed the research work of students who attended on these evenings. The students were of good calibre and they did good work. Several of them have risen to important positions in the electrical industry.

Under the leadership of its professor, the Department grew steadily in prestige, and its housing and equipment improved as the years passed. A notable development was the opening of its well-known High Voltage Laboratory in 1938 with the aid of a grant

from the London County Council. This Laboratory was an example of Prof. MacGregor-Morris's foresight—he was a good judge of new developments which were likely to become of major importance in electrical engineering. Another example of this was his interest in the cathode-ray tube from its earliest days. He was joint author of one of the earliest text-books dealing with these tubes.

His lectures were interesting, stimulating and unorthodox with his over-riding interest in research always intruding.

His students and particularly his research students were important personages to him. Many of them will recall with pleasure the annual 'get-together' of staff and research students at his home in Hampstead. Mrs. MacGregor-Morris always took an active part on these occasions.

He was a very active man. On most Wednesday afternoons during term time he would play a strenuous game of tennis or badminton. He was keenly interested in music and, when quite elderly, he learned to play the 'cello and became a proficient performer on this instrument. He was a devout Christian and took an active interest in missionary work.

W. J. JOHN

Dr. John Henderson, C.B.E.

DR. JOHN HENDERSON, for seventeen years director of the New Zealand Geological Survey (N.Z. Department of Scientific and Industrial Research), died suddenly at his home on March 6. Born in Dunedin in 1880, his later education was carried out at Otago Boys' High School, then at the University of Otago and Otago School of Mines. Here he completed, in 1902, his M.A. associateship of the School and B.E. (Mining).

For the next eight years he was director of Reefton School of Mines, during which time he devoted much energy to the investigation of the geological structure of the coal and gold mines of Westland and West Nelson, his thesis on the subject gaining him his D.Sc. in 1907.

In 1911 he was appointed mining geologist to the New Zealand Geological Survey. As well as keeping in touch with mining activities in the succeeding years, and reporting on numerous mines, quarries, and mineral properties of different kinds, he also reported on the geological implications of many engineering projects, for example the Arapuni Hydro-electric Dam on the Waikato River. In addition, he carried out extensive regional surveys of the geology and mineral resources of several districts. His bulletins on Reefton, Te Aroha (with J. A. Bartrum), Gisborne and Whatatutu (with M. Ongley), Mokau (with M. Ongley) and Huntly-Kawhia (with L. I. Grange) stand as lasting contributions to the geology of the Dominion.

At the request of the Fiji Government in 1923, Dr. Henderson visited and reported on the geology and mining prospects of gold-bearing quartz lodes in Vanua Levu.

Dr. Henderson, in 1928, succeeded the late P. G. Morgan as director of New Zealand Geological Survey and almost immediately encountered all the administrative difficulties and frustrations resulting from the financial stringency of the great economic depression. Nevertheless, by unremitting work he was able to keep his staff of geologists intact, and so actively to maintain the geological effort of New Zealand. Bulletins could no longer be printed, but

the condensed reports, and the black-and-white geological maps of the annual reports of those years, have since proved their worth.

With the coming of better times and the greatly increased activities of Works, Railways and other Government Departments and public bodies, the requests for geological advice increased enormously. The consequent expansion of the Geological Survey was carried out over a wide field, including soil surveys and geophysical surveys. Each of these has now become a separate division of the Department of Scientific and Industrial Research. About this time Dr. Henderson represented the Dominion at the International Geological Congress in South Africa, when he was able to visit the great gold mines of Johannesburg and the Rand.

In addition to his official duties, Dr. Henderson wrote a number of papers on general geology and stratigraphy, published in the *Transactions of the Royal Society of New Zealand* and in the *N.Z. Journal*

of *Science and Technology*. During his directorship he carried on the high tradition, so well implanted in Geological Survey routine by P. G. Morgan, of most careful and accurate editing of publications, especially of the bulletins. After retirement he acted as honorary editor (1946-49) of the *Transactions of the Royal Society of New Zealand*.

Dr. Henderson was of a modest and retiring disposition, avoiding publicity, but with a deep sense of public responsibility. His interests, and also his reading, covered a wide field. This gave him a vast amount of documented information always willingly and helpfully at the service of his colleagues. To the young geologist his wealth of knowledge and kindly interest provided a real source of inspiration.

Dr. Henderson was awarded, in 1929, the fellowship of the Royal Society of New Zealand, in 1935 the Jubilee Medal, in 1945 the Hector Medal and Award of the Royal Society of New Zealand, and in 1948 he was appointed C.B.E. J. MARWICK

NEWS and VIEWS

New Foreign Members of the Royal Society:

Prof. Melvin Calvin

PROF. MELVIN CALVIN, of the University of California, Berkeley, California, whose election to the foreign membership of the Royal Society was recently announced (see *Nature*, 183, 1230; 1959), started his professional career as a control chemist in industry after the completion of his doctorate at the University of Minnesota, to which he later returned as a teaching Fellow. He then spent two years at the University of Manchester, returning in 1937 to the University of California, where he has remained ever since. His early interests were in theoretical organic chemistry and the mechanism of organic reactions.

After the Second World War Calvin took over the work initiated by Ruben on the study of photosynthesis, but employing the newly available radio-isotope, carbon-14. The early results were questioned by many biologists, who from their physiological studies held strong convictions about the probable mechanism of photosynthesis; but with the timely advent of paper chromatographic methods Calvin used these to exploit the powerful potentialities of tracer techniques. From then on progress was rapid and Calvin was gradually led to formulate a mechanism of carbon reduction in photosynthesis which is now universally accepted. From studies of photosynthesis he was led to postulate enzymic systems not then isolated but afterwards discovered both in animal and in plant tissues. The photosynthetic cycle of Calvin and his collaborators may be elaborated in the future but is unlikely to be changed in its essential features. He was awarded the Stephen Hales award of the American Society of Plant Physiologists in 1956.

Calvin is the co-author of an excellent text-book on theoretical organic chemistry and his lectures have stimulated both undergraduates and research

workers. He has published books on the use of isotopes and on the chemistry of metal chelate compounds. His wide interests include photochemistry and general physical chemistry as well as theoretical organic chemistry.

Prof. G. Domagk

PROF. GERHARD DOMAGK, recently elected a foreign member of the Royal Society, has devoted his life to the fight against some of the main scourges on mankind, against cancer and against bacterial infections including tuberculosis. A graduate of the University of Kiel, Domagk began his university career in Greifswald and Münster; in 1927 he became head of the Research Institute for Experimental Pathology and Bacteriology of I. G. Farbenindustrie, Elberfeld, and it is there that he has carried out his successful researches for more than thirty years. Throughout this period he has, however, kept his ties with the University of Münster, where he was made personal professor in 1932.

The Editors regret that, due to difficulties in the printing industry, some sections of this issue of "Nature" have had to be curtailed

His discovery in 1932 that an azo dye, 'prontosil', cured streptococcal infections in mice revolutionized medical thought, which had for many years proclaimed that chemotherapy of bacterial, in contrast to chemotherapy of protozoan, diseases was a utopian aim. It is well known how this discovery led to the development of the treatment of many serious infections with a variety of 'sulphonamides'; the award of the Nobel Prize in 1939 was in recognition of this very great advance.

It is a tribute to the impetus given to chemotherapy by Domagk's discovery that when he turned to the problem of the chemotherapy of tuberculosis, there were many groups all over the world trying to tackle the same problem. So it happened that Domagk's most successful anti-tuberculous drug, isoniazid, discovered by him in 1951, was introduced into therapy independently by a group of American