pericardial gland in lamellibranchs⁴. The radula has naturally received much attention, especially from A. H. Cooke (president 1913-16) and A. J. Peile (president 1925-27). Molluscan faeces, a subject initiated by H. B. Moore, which yielded valuable results in systematics as well as in the study of submarine deposits, form the subject of a survey by him twelve years ago⁵.

Many pages naturally are devoted to the description of new forms, such as the papers on British Museum material by E. A. Smith and the long series of papers by J. C. Melvill (president 1929) on shells from the Persian Gulf and Gulf of Oman dredged during 1890-1914 by Captain F. W. Townsend, who contributed his own reminiscences on collecting⁶.

On the British non-marine Mollusca there are at least three important systematic monographs, that of A. S. Kennard, A. E. Salisbury and B. B. Woodward on Unionidæ⁷, of H. E. Quick on Succinea⁸ and A. E. Ellis on Pisidium⁹. A. E. Boycott, the most revered of presidents (1927-29), and that great naturalist, C. Oldham, have given papers on ecology and genetics. Boycott's great work on the inheritance of sinistrality in *Limnaea* involving a million individuals was published by the Royal Society¹⁰; a subsidiary investigation on abnormal forms¹¹ figures *inter alia* a snail so equally poised between dextral and sinistral that its shell was a simple cone.

The size of the *Proceedings* does not often permit long papers. There are, however, some catalogues for which the Society has waived its usual practice, that of Columbelloidæ¹² by S. Pace, of Marginelloidæ¹³ and of Conus¹⁴, both by J. R. le B. Tomlin, and the revision of British nudibranchs by T. Iredale and C. H. O'Donoghue¹⁵. Much of F. A. Schilder's work on cowries was published by the Society, including the prodrome of a monograph of the Cypræidæ¹⁶, "perhaps the first attempt to apply on a large scale to marine animals . . . methods of geographical delimitation of races"¹⁷.

C. D. Sherborn's work on the "Index Animalium" directed the attention of naturalists to the importance of the bibliography of natural history. From 1901 onwards many bibliographical papers appear, the last being one by A. S. Kennard on the *Histoire* and *Prodrome* of Férussac¹⁸. The subject now has its own society and journal.

Exhibits have always been an interesting feature at the meetings and their records are often of interest; for example, W. G. Ridewood's exhibit of *Phœnicurus*¹⁹, a genus which proves to be based on the cerata of a nudibranch. A year after Röntgen's discovery in 1895 of X-rays, a series of 'skiagraphs' of shells and living molluscs was exhibited²⁰; the published plate of a nautilus must be counted an incunabulum of X-ray photography. Recently X-rays have been used to confirm the systematic relations of the rare shell *Thatcheria*²¹.

At the jubilee meeting Prof. C. M. Yonge surveyed fifty years' work on functional anatomy, referring especially to the study of the molluscan gill, ciliary feeding, musculature, innervation.

Mr. A. Blok gave an account of shells and ornament, accompanied by a big range of exhibits from savage ornaments to modern industry, touching on ethnological and artistic aspects. Art at its lowest was seen in some of the Victorian 'horrors' and 'rubbish for tourists', while the highest level was shown in some of the cameos exhibited: the best known cameo artist was Benedetto Pistrucci, who also designed the George and dragon of our gold mintage.

Dr. L. R. Cox concluded the jubilee addresses with a review of fifty years of molluscan paleontology.

Honorary membership was instituted in 1921 when Dr. Woodward, the first president, Dr. Paul Pelsenier and Dr. C. D. Sherborn were elected. Since then, apart from previous members of the Society, J. W. Taylor, founder of the *Journal of Conchology* and of the Conchological Society, Prof. D. M. S. Watson and Sir D'Arcy Thompson have been added. Dr. H. A. Pilsbry, who recently celebrated his eightieth birthday, was elected an honorary member at the jubilee meeting.

In 1926 Mr. H. McClelland generously presented every member of the Society with a general index to the fifteen volumes of *Proceedings* and sixteen volumes of the *Journal of Conchology*, which he had prepared and published. The history of the Conchological Society has been recorded by Dr. J. W. Jackson²². Percy Edward Radley (1861-1927), a keen amateur of conchology and microscopy, bequeathed his library to the Society. This is kept in the library of University College, London.

In France, malacology has been represented chiefly by the *Journal de Conchyliologie*, founded by S. Petit de la Saussaye in 1850 and since 1860 associated with the Fischer family. In 1935 the direction of the *Journal* organized a *Réunion amicale* of conchologists, malacologists and palæontologists, at which Mr. A. Blok represented the Society. It was resolved to hold triennial meetings in Paris, Brussels and London, but subsequent events have prevented the fulfilment of this plan, which it is hoped will be revived after the War.

¹ *Proc. Malac. Soc.*, 2, 117 (1896) and 7, 269 (1907).

² *Proc. Malac. Soc.*, 21, 42 (1934).

³ *Quar. J. Micro. Sci.*, 44, 215 (1901).

⁴ Reviewed in *NATURE*, 150, 771 (1942).

⁵ *Proc. Malac. Soc.*, 19, 281 (1931).

⁶ *Proc. Malac. Soc.*, 18, 118 (1923).

⁷ *Proc. Malac. Soc.*, 16, 267 (1925) and 17, 191 (1927).

⁸ *Proc. Malac. Soc.*, 20, 295 (1933) and 21, 96 (1934).

⁹ *Proc. Malac. Soc.*, 24, 44 (1940).

¹⁰ Boycott, Diver, Garstang, Hardy and Turner, *Phil. Trans.*, B, 219, 51 (1930).

¹¹ *Proc. Malac. Soc.*, 19, 141 (1930).

¹² *Proc. Malac. Soc.*, 5, 36 (1902).

¹³ *Proc. Malac. Soc.*, 12, 242 (1917) and 13, 41 (1918).

¹⁴ *Proc. Malac. Soc.*, 22, 205 (1937).

¹⁵ *Proc. Malac. Soc.*, 15, 195 (1923).

¹⁶ *Proc. Malac. Soc.*, 23, 119 (1938-39).

¹⁷ *NATURE*, 144, 642 (1939).

¹⁸ *Proc. Malac. Soc.*, 25, 12 and 105 (1942).

¹⁹ *Proc. Malac. Soc.*, 8, 121 (1908).

²⁰ *Proc. Malac. Soc.*, 2, pl. 15, 179, 205 (1897).

²¹ Eales, *Proc. Malac. Soc.*, 23, 15 (1938).

²² *J. Conchol.*, 18, 65 (1927).

OBITUARIES

Dr. Leopold Frommer

DR. LEOPOLD FROMMER, of High Duty Alloys, Ltd., died after an operation on January 27, at the age of fifty. He was born of Polish parents and obtained his diploma in mechanical engineering at the Technical University of Berlin (Charlottenburg).

I first met Dr. Frommer in 1929, when he was working under Prof. M. Polanyi at the Kaiser Wilhelm Institut für Physikalische und Elektrochemie, in Dahlem, Berlin. He had just given up what promised to be a very successful industrial engineering career in order to take up fundamental research on the study of chemical kinetics. My interest was aroused, however, by his great knowledge of the pressure die-casting technique and his ability to apply funda-

mental engineering and physical principles to this highly commercialized process. For some time I had been thinking out ways of applying the pure scientist to technical problems, and in Frommer I found a man who in himself bridged the gap between the two, being that rare combination of a really practical engineer and a very competent scientific man.

In 1934, when Dr. Frommer was forced to give up his work at the Kaiser Wilhelm Institut, he came to England. Having completed his well-known book, "Handbuch der Spritzgusstechnik", he no longer retained any great interest in die-casting and was bent on a career of scientific research. Some time before, I had instituted in the High Duty Alloys research laboratories an investigation by means of X-ray crystallography into the determination of internal stresses in light-alloy components, the long-range objective of which was to enable us to control the manufacturing conditions which were responsible for these stresses. I offered to put Dr. Frommer in charge of this work and he readily accepted, seeing that this was a research problem after his own heart. He got down to work on the development of new experimental methods with extraordinary enthusiasm, and shortly afterwards undertook the additional tasks of developing spectrographic and colorimetric methods for routine analysis.

Dr. Frommer quickly organized the necessary departments in the laboratories and in two years had handed over spectrographic and colorimetric analysis for routine testing purposes. His main interest and greatest achievement were still, however, in the work on X-ray crystallography. He solved the problem of applying the technique to the measurement of internal stresses in aluminium and magnesium alloys, and designed some remarkable pieces of apparatus for applying these measurements to the largest aircraft components. The results he achieved were of real practical value and gave us

much clearer insight into the formation of these stresses. Some of his work has been published and a great deal more will be published as soon as arrangements are complete. I believe that when all his results are known, he will be acknowledged to have added greatly to our knowledge of physical metallurgy.

In 1939 he was given the task of applying the technique of the measurement of internal friction of metals to technical problems, and here again found a research item which gave full rein to his peculiar talents. At the time of his death, he had evolved a technique incorporating many novel features for carrying out these measurements.

Dr. Frommer was a prodigious worker who never spared himself even when in ill-health. He was a most resourceful experimenter who brought a sound knowledge of mechanical engineering to aid him in his fundamental studies. He had an extraordinary capacity for rapidly assimilating and applying all the published information on any new problem which confronted him. His impatient and relentless pursuit of complete mastery of the many problems encountered in his researches made him grudge the time taken in writing reports, and in spite of repeated urging, the preparation of his results for publication lagged far behind his actual accomplishments and so, tragically enough, he was not spared to present many of his own most important discoveries. Thanks, however, to his admirable organizing abilities and planning, the departments which he built up will be able to carry on smoothly with the work which he initiated.

His untimely end at the early age of fifty is a great loss, both to pure physical science and to industrial research, and his many scientific friends and colleagues will feel a deep sense of loss at the passing of this able man, who at once possessed the highest qualities as a scientific worker and as an engineer.

W. C. DEVEREUX.

NEWS and VIEWS

University of Birmingham

IN his report to the Council, presented to the annual meeting of the Court of Governors, the Vice-Chancellor, Dr. Raymond Priestley, spoke of the future of the universities. "University education properly directed could be a mighty means towards the salvation of mankind. University education as it is to-day must accept its share of responsibility for our present plight." The most urgent need of the University of Birmingham is funds to effect the transfer of the Faculties of Arts, Law and Education, the University Library and central administrative offices, from the city to Edgbaston. Then three more hostels are required for the men and one for the women, and a headquarters for the extra-mural department which deals with adult education. This much is necessary to accommodate post-war students, a large proportion of whom will be men and women who have been taught, in the school of war, to know what they want and to see that they get it. The University should be ready to help in training the experts and the teachers of the devastated lands. The Council has already promised to take without fee a number of Chinese students.

Dr. Priestley spoke of some innovations which have been made. When the University decided to

make physical training compulsory for all first-year students, it was intended to appoint a whole-time University medical officer whose business was to be the routine examination of all men students (most of the women were already examined on entry) and to keep a constant watch on the physical education programme. The demand of the Services for medical men, however, made it impossible to carry out the plan as originally intended; but the post has been filled on a temporary basis by the appointment of a member of the clinical staff (Dr. G. A. Auden). Another innovation was the establishment by the Faculty of Arts of special courses in modern studies, in view of the reorganizations which are bound to follow the end of hostilities. These courses deal with modern history, geography and modern political theory, and require the study of a foreign language. They are combined with a 'conference' consisting of lectures on present-day world-affairs, followed by short discussions. In the Department of Zoology, Prof. Lancelot Hogben has organized a course of lectures on social biology (open to all the University), which is intended to give some knowledge of the biology of man, of nutritional, housing, and sanitary standards, vital statistics, human heredity and educability, and of the biology of useful and destructive animals and plants. The course has been well attended.