œstrogen in plants hints at the possibility that it exerts a very widespread action as a controller of mitosis.

Dr. Bullough ended by saying that a study of mitotic frequency has obvious practical bearings. Lowering the food intake of mice by one-third depresses the rate of cell division, and is known to prolong their life, lower the frequency of tumour incidence and to discourage the multiplication of parasites.

Dr. J. S. Weiner (Oxford) dealt with the activity of sweat glands in man. He pointed out that an accurate census of sweat glands over the skin surface has still to be made, and that the degree of variation between individuals and races is unknown. We are largely ignorant even of the functional morphology of the individual gland. What, for example, is the blood supply of the duct of the gland, and what is the energy source of sweating? Work at Oxford has begun with an investigation of technique. In Japan, Kuno has shown it to be possible to cannulate the ducts of single glands, and it has now proved possible to dissect out individual glands for study in the microrespirometer. Sweat itself can be collected in an arm bag or by washing down the body surface with water. By this second technique, which has now been adapted for serial sampling, the production of sweat can only be computed indirectly from the change of body-weight. Arm sweat has proved to be more concentrated than body sweat, though the proportions of solutes in the two are the same. About 95 per cent of the osmotic activity of sweat can be accounted for: approximately 80 per cent is due to chloride, 10–11 per cent to lactate, and 2–3 per cent to urea.

Preliminary studies have shown that although sweat glands are subject to fatigue, the rate of sweating increases with time of exposure to high temperatures; its chloride concentration is related to the skin temperature. Acclimatization brings about increased sweating, and this is largely responsible for the increasing dilution of the sweat in the arm bag.

A clue to the source of energy for sweating is given by the fact that the lactate content rises in sweat from an arm rendered ischæmic by an arterial cuff. The chloride content drops in the earlier stages of ischæmia.

Prof. A. M. Boyd (Manchester) spoke of the treatment of excessive sweating by sympathectomy. The area of sweating can be mapped by painting the patient with a suitable indicator powder; but this is a messy method and its use makes it necessary to warm the patient up. It has been found possible to map the area of sweating by recording changes in the electrical resistance of the skin. The resistance of dry skin is only 10 per cent higher than that of damp skin; but the method now in use in Prof. Boyd's laboratory is sensitive enough to record it without warming the patient up.

Hyperhydrosis—excessive sweating—particularly of the extremities, can have serious consequences; fungal infection and the allergic dermatitis and ulceration associated with it can be so severe as to simulate gangrene. Sympathectomy can abolish hyperhydrosis over the area of denervation, and is, of course, used for the treatment of other disabilities as well—in the relief of arterial block, for example, to ensure the establishment of a good collateral circulation. To abolish hyperhydrosis of the legs and feet, a sympathectomy involving the second and third lumbar ganglia is not always satisfactory, for the area of denervation may sometimes be confined to as small an area as the inner aspect of the calves. The best result is to be achieved by sympathectomy involving the first lumbar ganglion as well, and Prof. Boyd dismissed as an illusion the idea that this operation affects the fertility of the male.

Among the matters that arose in discussion at the end of the morning's session were the unsatisfactory state of our clinical knowledge of leucoderma (local skin depigmentation). Prof. Medawar said that leucoderma may be due to a local destruction of pigment-forming cells or to a temporary suppression of their pigmentary activity; the latter is probably the explanation of the depigmentation caused by, for example, industrial anti-oxidants. In answer to a question on the distribution of mitoses in the epidermis, Dr. Bullough said that in his experience mitosis in normal skin is confined to the basal layer, that is, the epidermal cells at the dermo-epidermal interface. Mitosis may occur at a slightly more superficial level in hyperplastic skin.

[1] Findlay and Yang, *J. Agr. Sci.* (in the press).

OBITUARY

Mr. R. Winckworth

RONALD WINCKWORTH, who died at his home at South Norwood on September 6, in his sixty-sixth year, was one of the best known British malacologists. He was educated at Epsom College (1896–1902) and at Jesus College, Oxford, where he read mathematics (1906–10). After leaving the University, he held a number of scholastic appointments and was teacher of mathematics at Brighton Technical College (1912–14). On the outbreak of war, Winckworth enlisted as a seaman, and later became paymaster-lieutenant. He served in several of H.M. ships and saw service in northern European waters and at Gibraltar.

After the First World War, Winckworth's love of natural history led him to accept a post as assistant at the Marine Biological Laboratory, Plymouth, and it was here that he laid the foundation for his later work on Mollusca. He left Plymouth in 1921 and, after some miscellaneous teaching and lecturing, spent six months studying natural history in India and Ceylon.

In October 1925, he joined the administrative staff of the Royal Society and worked at first on publications and later as librarian. He became assistant secretary in 1932 and assistant editor from 1937 until his retirement, due to ill health, in 1944.

From 1925 Winckworth devoted much of his leisure hours to the study of British and Indian Ocean Mollusca and published many papers, mainly in the *Journal of Conchology* and in the *Proceedings of the Malacological Society*. He never missed opportunities of collecting in the field; but his official duties precluded much work on the living animal, and he became one of our foremost authorities on the systematics and bibliography of the Mollusca. His "British Marine Mollusca" (*J. Conch.*, **19**; 1932) will be long remembered as a successful attempt to stabilize the names of our molluscs. In collaboration with his brother (the late Col. H. C. Winckworth) he began a long-term project to study Indian Ocean Mollusca, particularly the nudibranchs. This was not completed, due to his brother's death and his own ill health.

Winckworth was enthusiastic and energetic in all that he undertook and was always ready to help students of Mollusca; all were hospitably received at his house at South Norwood. As editor of the *Proceedings of the Malacological Society* (1928–47), he gave many a beginner valuable aid and encouragement in writing a first paper, and the more experienced could always obtain sound advice on their problems. He was a simple and generous man, neat and methodical in his ways, and had a passion for orderliness in all things. His particular niche in British malacology will not easily be filled and his death will be felt as a personal loss by friends in many lands.

Winckworth belonged to many scientific societies and held office in several, including the Linnean Society of London (council 1943–47, vice-president 1945–47); the Malacological Society of London (council 1924–48, president 1939–42, elected honorary member 1949); the Conchological Society (president 1930–31). He was also a founder member of the Society for the Bibliography of Natural History and of the Systematics Association.

He first married Margaret Wallace, who died in 1939, and later Alison Mary Cruickshank, who nursed him with great devotion through a long illness.

W. J. Rees

NEWS and VIEWS

Radcliffe Observatory, Pretoria: Dr. H. Knox-Shaw

Dr. Harold Knox-Shaw has retired from the post of Radcliffe Observer and director of the Radcliffe Observatory, Pretoria. A pupil of S. A. Saunder at Wellington College and of A. R. Hinks at the Cambridge Observatory, he left Trinity College, Cambridge, in 1908 to become astronomical observer and afterwards director of the Khedivial Observatory, Helwan, Egypt. There his chief work lay in the photography of nebulæ and comets with the 30-in. Reynolds reflector. He secured the first photograph of Halley's comet at its return in 1910. In 1924 he succeeded Rambaut as Radcliffe Observer at Oxford, carrying on such work as measures of stellar parallaxes, and of Kapteyn's selected areas. The decision of the Radcliffe Trustees to sell the Oxford site to Lord Nuffield, to meet the growing needs of the Radcliffe Infirmary, was coupled with a plan to build a new 74-in. reflecting telescope in the southern hemisphere on a suitable site. While carrying on work on the reduction of stellar observations, including a long early series by Hornsby, Dr. Knox-Shaw's activities centred more and more from 1934 onwards on the erection of the new observatory buildings near Pretoria and of the telescope itself. A series of delays due to legal proceedings, difficulties in casting the mirror and the War prevented the arrival of the mirror in Pretoria until 1948, while even now the spectrograph for use at the Cassegrain focus, ordered and put in hand before the War began, has not been delivered. Much sympathy has been felt in astronomical circles with Dr. Knox-Shaw for the years of frustration that he passed through, but at least he has had the joy of seeing a first-class 74-in. mirror successfully at work in the telescope, and of knowing that a tremendously rich field of opportunity has opened up for the future. Dr. Knox-Shaw was president of the Royal Astronomical Society during 1931–33.

Dr. A. D. Thackeray

Dr. A. D. Thackeray, who succeeds Dr. Knox-Shaw as Radcliffe Observer, was educated at Eton and King's College, Cambridge. He was elected to the Sheepshanks Exhibition at Cambridge to work at the Solar Physics Observatory and later to a Commonwealth Fund Fellowship, with which he worked for two years at Mt. Wilson Observatory. He returned to Cambridge as assistant director of the Solar Physics Observatory, acting as director for a time in the early years of the War. In 1947 he became chief assistant at the Radcliffe Observatory. His work has been principally observational, covering a wide range of problems on stellar spectra, contours of absorption lines and on nebulæ. He has taken part in eclipse expeditions in Canada (1932) and Japan (1936). He has now a great opportunity of organising a wide programme of research in a very open field: happily, there is good prospect that his small staff will be supplemented by observers from other countries, who will make of the Radcliffe Observatory an important international centre of research.

Carty Medal and Award of the U.S. National Academy of Sciences: Dr. Irving Langmuir

The John J. Carty Gold Medal and Award of the U.S. National Academy of Sciences has been awarded to Dr. Irving Langmuir, who recently retired from the post of associate director of the General Electric Research Laboratory, Schenectady, New York. This Medal was established in 1930 in honour of the late John J. Carty, a member of the Academy, by his close associates, as a token of esteem on the occasion of his retirement from the vice-presidency of the American Telephone and Telegraph Co. It is awarded not more than once in two years and is given for noteworthy contributions to the advancement of fundamental or applied science in any field. Dr. Langmuir has received many high honours, among which may be mentioned the Nobel Prize in Chemistry (1932), his election as a foreign member of the Royal Society (1935), the Faraday Medal of the Chemical Society (1938), and the Faraday Medal of the Institution of Electrical Engineers (1944). His research work is remarkable for the extraordinarily wide range of his investigations. These include electric lighting, electron emission and gaseous discharge, surface chemistry and (during the Second World War) the production of smoke screens. Besides his interests in many branches of pure and applied science, Dr. Langmuir has made a number of valuable contributions to general scientific thought and the philosophy of science.

Geology at the Aligarh University

A Department of Geology has been created at Aligarh University and Dr. P. N. Ganju has been appointed reader and chairman of the new Department. Dr. Ganju has recently returned from King's College, University of Durham, where he specialized in coal petrology. The importance of trained geologists in India needs no emphasis; a great deal remains to be done in developing and exploring the mineral resources of this vast country. At the