

minima of ionization density, and abnormally rapid pre-dawn reduction of these densities. During magnetic storms these anomalies are removed, and the diurnal variation of  $F_2$ -region electron densities in the vicinity of the magnetic equator approximates more closely to that anticipated for a simple 'Chapman' region.

This work is published by permission of the Radio Research Board of the Commonwealth Scientific and Industrial Research Organization. I am indebted greatly to Miss B. Hardwick, who has supervised the reduction into appropriate form of ionospheric data from co-operating observatories.

<sup>1</sup> Appleton, E. V., and Ingram, L. J., *Nature*, **136**, 548 (1935).

<sup>2</sup> Berkner, L. V., and Seaton, S. L., *Terr. Mag.*, **45**, 419 (Dec. 1940).

<sup>3</sup> Appleton, E. V., and Piggott, W. R., *Nature*, **165**, 130 (1950).

<sup>4</sup> Martyn, D. F., Proc. Mixed Comm. Ionosphere, 2nd Meeting, p. 49, Brussels (1950).

<sup>5</sup> Martyn, D. F., *Nature*, **167**, 92 (1951).

<sup>6</sup> Martyn, D. F., *Proc. Roy. Soc., A*, **189**, 241 (1947).

<sup>7</sup> Martyn, D. F., *Proc. Roy. Soc., A*, **201**, 216 (1950).

<sup>8</sup> Martyn, D. F., *Proc. Roy. Soc., A*, **194**, 445 (1948).

## OBITUARIES

### Mr. H. C. Sampson, C.I.E.

HUGH SAMPSON, whose death at the age of seventy-four occurred on November 29, was an authority on tropical agriculture. His knowledge was gleaned during service in many countries. Born in Simla and educated at Bedford School and the University of Edinburgh, he joined the Transvaal Department of Agriculture in 1903; but after a couple of years he accepted the post of agricultural expert to the Madras Court of Wards. The great renaissance of Indian agriculture was just beginning, and Sampson was one of the first officers to join the newly constituted Indian Agricultural Service. For the next fifteen years he worked in Madras, first as deputy director, with headquarters at Tinnevely, and later as director. His work during this period led to marked improvement in the agricultural methods of the Madras Presidency. He was the first to admit the difficulties that held back progress. Among these were the limitations caused by debt and the system of tenure, and he always, therefore, advocated a cautious approach and preached the necessity for the thorough investigation of natural methods before attempting to discard or alter them. In spite of these hindrances, he was able to effect improvements in the seed supply and modifications in the types of agricultural implements. A notable example was the introduction of a long-stapled American Upland cotton which he introduced from Cambodia after a visit he had made to Indo-China.

In 1923 Sampson resigned from the Indian Agricultural Service and went to Nyasaland as cotton specialist under the Empire Cotton Growing Corporation. He worked there for three years and was successful in laying the foundations of the excellent experimental work that has been carried out in this Protectorate, and in sorting out the mixed cottons that were then grown, initiating modern plant-breeding methods and a proper seed supply.

In 1927 he joined the staff of the Royal Botanic Gardens, Kew, as economic botanist, a post that had been newly created with the connivance of the Empire Marketing Board. He retired from Kew in 1938, but during his term of office he visited the Caribbean Colonies and wrote reports on them for

the Empire Marketing Board. He was instrumental in organizing the dispatch of planting material of several new economic crops to various Colonies where prospects seemed suitable. Perhaps the most notable of these was the introduction of tung oil into Nyasaland and Swaziland. His 'magnum opus' was the publication of a *Kew Bulletin* entitled "The Cultivated Crop Plants of the British Empire and the Anglo-Egyptian Sudan", a work that entailed an immense amount of labour and which remains a standard work of reference.

Sampson had a likeable character. His quiet voice, whimsical manner and kindness endeared him to all his associates. He had the satisfaction in retirement of knowing that the work he had done during those early days in India has had a lasting effect, and one imagines that his memory is still green and respected in the Madras Presidency.

G. EVANS

### Dr. J. Henderson Smith

JOHN HENDERSON SMITH, who died on November 28, graduated from Balliol College, Oxford, in 1898, proceeded to Edinburgh, where he took his medical degree in 1903, and then returned to Oxford as Philip Walker Student in pathology. Later, he was appointed bacteriologist to the Lister Institute. Here he did some promising work on immunology; in one of his early investigations, published in 1907, he demonstrated that the concentration of anti-toxin in the blood at any time depends on the route of introduction. Later, in conjunction with Brooks, he studied the influence of the dose of antigen on the output of the antibody and on its time of appearance; the results were published in 1912. All this work was characterized by cleanness and accuracy of experimental technique, and by careful and critical examination of the results; he seemed to have the prospect of a very promising career in his subject.

Then, unfortunately, he was struck down with tuberculosis, and although he made gallant attempts to continue his work he had to give it up; in 1916 he left the Institute.

Henderson Smith refused, however, to abandon scientific work. Fortunately the Rothamsted Experimental Station was beginning to expand and had brought plant diseases within its ambit. Its policy was to bring in young people each well trained in some pure science which he or she could apply to the problems of the Station; in connexion with the new developments, it was desired to find someone well grounded in human or animal pathology who could introduce new ideas and methods into the study of plant pathology. Henderson Smith was attracted to the work; by 1919 he had recovered sufficiently to join the staff, and the healthy surroundings and the devoted care and attention of his wife enabled him to stay out his full term of service with no further serious trouble. He retired on reaching the age limit in 1940.

Henderson Smith's first investigations at Rothamsted were on the growth-rate of fungal hyphae, but he soon turned to more fundamental studies of the killing of fungus spores by phenol; these proved to be a valuable contribution to the general theory of disinfection. Plant virus diseases were then coming into prominence and he turned over to them; his work soon attracted attention, and following a request from the Imperial Mycological Conference of 1929 that virus diseases should be more fully studied,

the Empire Marketing Board provided funds for a research team under his leadership. The work included the nature of the cell inclusions—the so-called X-bodies—the concomitant bacteria in virus diseases, and the size of the viruses.

When W. B. Brierley left Rothamsted in 1932 to occupy the chair of agricultural botany in the University of Reading, Henderson Smith was appointed to succeed him as head of the Department of Mycology; it continued to expand and to attract able young people, becoming one of the most vigorous at Rothamsted. He served as president of the Association of Applied Biologists, and was also president of the Virus Section of the 1939 International Congress of Microbiology.

'H. S.', as he was always affectionately called, enjoyed much quiet esteem among his colleagues. Under his wife's watchful care he had to be cautious in all matters pertaining to health, but this did not restrict his interests. Like his wife, he was well read; in addition, he was a recognized authority on book plates, of which he was a discriminating collector, and an ardent and competent player of golf and of bridge. He never sought popularity, but his courage and his persistent determination to go on with his work in spite of threatened ill-health won him much respect from those who knew him well.

E. JOHN RUSSELL

#### Dr. Franz K. Nagelschmidt

FRANZ NAGELSCHMIDT, a pioneer of physical medicine, died on October 4 in Manchester. He was born in Berlin on January 29, 1875. He studied medicine, but soon became also interested in physics, for he thought that the many advances in modern experimental physics taking place at the end of the past century could be utilized for medical purposes. He went first to Copenhagen to work with Finsen, the founder of light therapy. He then returned to Berlin and established a light treatment institute at the Charité, where he installed the first X-ray unit for therapeutic purposes in 1903. In 1904, he founded a light treatment institute in Breslau, where he applied radium rays for the first time for treatment. In 1906, he settled in Berlin and founded the Finsen Clinic, of which he was in charge until 1933. Here he developed diathermy—the name was coined by him, and generally adopted, for the creation of heat inside the tissue by external application of electric

currents, his best-known discovery. He also designed and introduced an ultra-violet lamp without water cooling. This lamp, the prototype of modern ultra-violet lamps, carried his name for several years. In 1911, he designed an apparatus to produce 'electro-rhythmic current' for electrical vibration treatment. In 1912, he invented the neon lamp, originally for medical purposes.

In 1933, Dr. Nagelschmidt left Germany for Great Britain, where he was immediately made an honorary consultant of physiotherapy at the Jewish hospital in London. In 1934, he had been awarded the "Golden Key" of the American Congress of Physical Therapy for "outstanding service to the science of physical medicine". In 1936, he qualified in Edinburgh as a medical practitioner and settled in Manchester as honorary consultant in physiotherapy at the Jewish hospital. He also founded a private therapeutic institute where he practised physiotherapy and carried out research until about three hours before his death.

Nagelschmidt was a man of many talents and many interests, in art as well as in science. In spite of all his achievements, he was a very modest man. This modesty made him call all the therapeutic establishments installed by him after his teacher Finsen, and this may explain why the scientific world knows the name of Finsen, who first conceived light therapy, much better than the name of Nagelschmidt, who developed it and who added all the other forms of physiotherapy to it. It may also account for the fact that few honours were bestowed on this great man.

W. ROMAN

WE regret to announce the following deaths:

Mr. E. G. Dymond, reader in natural philosophy in the University of Edinburgh, on October 26, aged fifty-two.

Prof. M. G. Evans, F.R.S., professor of physical chemistry in the University of Manchester, on December 25, aged forty-eight.

Prof. A. H. Jameson, emeritus professor of civil engineering in the University of London (King's College), on December 23, aged seventy-eight.

Prof. E. Allison Peers, Gilmour professor of Spanish in the University of Liverpool, and author, under the pseudonym "Bruce Truscot", of books on the functions of universities in present-day Britain, on December 21.

## NEWS and VIEWS

### A Further Coelacanthid Fish

ON December 22, 1938, a fish of Crossopterygian type was taken by trawl-net, at a depth of about 40 fathoms some miles west of East London. The animal was unquestionably alive when caught. It was 1,500 mm. in total length and weighed 127 lb. The colour was a bright metallic blue which faded to brown with preservation. Miss Courtenay-Latimer, curator of the East London Museum, took charge of the catch, and eventually Prof. J. L. B. Smith, now research professor of ichthyology in Rhodes University, Grahamstown, was able to examine it (*Nature*, 143, 455; 1939). Prof. Smith immediately named it *Latimeria chalumnae* gen. et sp. nov., as a tribute to Miss Latimer. This discovery naturally aroused great interest, although, in spite of Miss Latimer's

care, much disintegration of parts had occurred. Until then, only fossil records of coelacanthid fishes, believed to have been extinct for about fifty million years, had been available. Further details of this fish were published in *Nature* (143, 748; 1939) by Prof. Smith.

Now comes a report of a further catch. This second fish was reported as having been caught on December 20 off the island of Anjouan in the Comoro group, two hundred miles west of Madagascar. It was reported to be about 5 ft. long and to weigh about 100 lb. On December 29, the fish was received by Prof. Smith, who had flown to the island to retrieve it and to take it to Rhodes University for further study. Preliminary reports suggest that Prof. Smith is very satisfied with the state of preservation of the