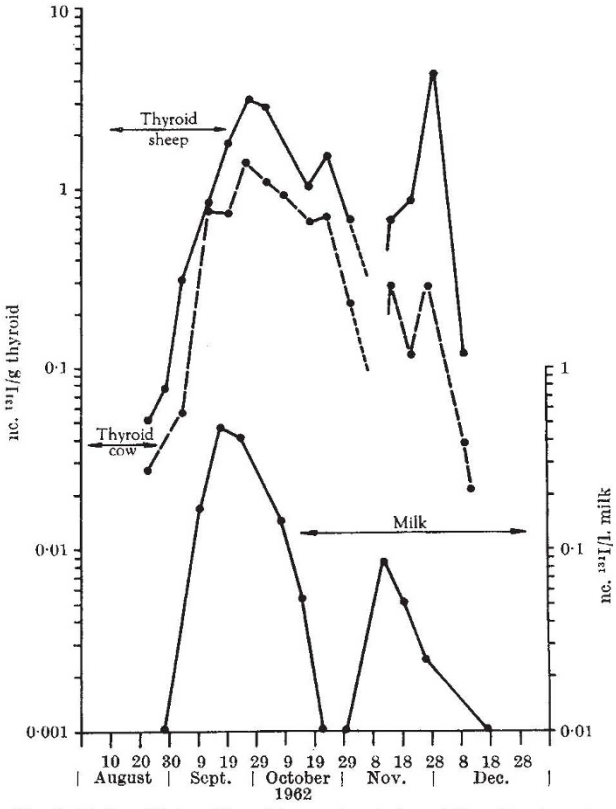

Fig. 3. Iodine-131 in milk and in cows' and sheeps' thyroids, August–December 1962

northern Norway indicate that this part of the country was touched by the outer fringes of the cloud only.

Based on the time-integrated concentrations of iodine-131, the radiation doses to children's thyroids from inhaled iodine-131 during the period November 6–15 can be estimated. Assuming that 1 μc.sec/m^3 of iodine-131 will give 2·5 millirad[1], the doses in southern and northern Norway are calculated to be 10–40 and 1–10 millirad, respectively.

The grazing season for cows in Norway ends before November. Iodine-131 deposited on the ground should therefore not contribute to the milk activity. It may be estimated, however, that inhalation can give a burden to cows' thyroid of up to about 0·4 nc. ^{131}I/g, and a concentration in milk of up to about 0·1 nc. ^{131}I/l. Other contributions of iodine-131 may come from hay, contaminated from air blowing through the barn, and from drinking-water.

Fig. 3 shows measured concentrations of iodine-131 in sheeps' and cows' thyroids and in milk at Trondheim during the autumn of 1962. The concentration in milk, after having fallen to low values following the cows' transfer to indoor feeding, increased to nearly 0·1 nc./l. when the radioactive cloud passed.

The final rate of decrease corresponds to a half-life of the order of 8 days, a value which is more consistent with uptake through food than by inhalation. Too much emphasis should not be put on this, however, as the milk samples were obtained from a dairy serving a large district with pronounced inhomogeneities as to topography and farming practice.

The dose to infants' thyroids from iodine-131 in milk during November–December may be estimated to about 40 millirad in the Trondheim area.

The concentration in cows' thyroids culminates at 0·3 nc. ^{131}I/g, in fair agreement with the estimate. The concentration in sheeps' thyroids is higher. Still, the weight being smaller, its total content may well be lower than in cows' thyroids.

If the radioactive cloud had passed during the grazing season, it may be estimated, based on earlier measurements at this Establishment, that the concentration of iodine-131 in milk might have reached 10 nc./l. or more, corresponding to doses up to 5 rads or more to milk-drinking infants' thyroids, with wide variations from district to district depending on precipitation and grazing field qualities.

[1] Farmer, F. R., and Fletcher, P. T., *Atom*, No. 33 (July 1959).

OBITUARIES

Dr. Winthrop J. V. Osterhout

DR. WINTHROP JOHN VANLEUVEN OSTERHOUT, member emeritus of the Rockefeller Institute, New York, and pioneer in the field of cellular biology, died on April 9. He was ninety-two years of age.

Dr. Osterhout was one of the first scientists to apply the techniques and concepts of physical chemistry to living systems. His classical research was exploration of the mechanism underlying the uptake of ions in certain aquatic plants. "Dr. Osterhout was one of a few leading pioneers who began to explain living matter in terms of chemistry and biology", said Dr. Detlev W. Bronk, president of the Rockefeller Institute, in describing his contributions to science. "Modern biology rests on the foundations they laid half a century ago.

"He had a profound influence on the evolution of biological science through his students at the Rockefeller Institute and at the Marine Biological Laboratory at Woods Hole, Massachusetts, where he maintained a summer laboratory for sixty years".

For many years Dr. Osterhout was associated in his scientific work with his wife, the former Marian Irwin, of New York City. He is survived also by two daughters, Mrs. Theodore M. Edison, of West Orange, New Jersey, and Mrs. Harold B. Sears, of Williamstown, Massachusetts. He also leaves three grandchildren and six great-grandchildren.

On the occasion of Dr. Osterhout's ninetieth birthday in 1961, hundreds of individuals and organizations throughout the world extended greetings to him.

Born in Brooklyn on August 2, 1871, he received his B.A. and M.A. degrees from Brown University in 1893 and 1894. He studied for a year at the University of Bonn, Germany, under Eduard Strasburger and received his Ph.D. degree from the University of California in 1899, where he studied under Jacques Loeb. He was an instructor in botany in Brown University and served on the University of California faculty until 1909. He then joined the Harvard University faculty in 1909 and was afterwards appointed professor and chairman of the Division of Biology. In 1925 he left Harvard to join the Rockefeller Institute as member and head of a Division of General Physiology. He became member emeritus in 1939 and in that capacity continued his research.

His first affiliation with the Institute was with Dr. Loeb in establishing the *Journal of General Physiology* in 1918. He was a member of the Board of the Institute during 1920–25.

Brown University conferred an honorary Ph.D. degree on Dr. Osterhout in 1926 and Harvard University an

honorary Sc.D. degree in 1925. He was an honorary member of the Botanical Society of Edinburgh, Scotland, a trustee emeritus of the Marine Biological Laboratory, and vice-president of the Long Island Biological Laboratory.

A former member of the editorial board of the *Journal of General Physiology*, he was the author of *Experiments with Plants*, published in 1905, *Injury, Recovery and Death*, in 1922, and *Nature of Life*, in 1924. His numerous scientific contributions numbered more than 250.

He was a member of the U.S. National Academy of Sciences, the American Philosophical Society, the American Physiological Society, a Fellow of the American Association for the Advancement of Science, and of scientific societies in Sweden and Germany.

Mr. John Parkin

In these days of intense specialization it is refreshing to think of the life and work of a man who was publishing botanical papers from 1898 until 1960 and who could include in the list papers of fundamental importance on the formation, storage and depletion of carbohydrates in monocotyledons, the science and practice of Para rubber cultivation, the carbohydrates of the foliage leaf of the snowdrop, the origin of Angiosperms, and the anatomical explanation of the unique glossiness of the petals of *Ranunculus*.

John Parkin was born on the family estate of Blaithwaite House, Wigton, Cumberland. He graduated from Trinity College, Cambridge, with first class in both parts of the Tripos in 1897. For a year he demonstrated in the University and then accepted the newly created post of scientific assistant to the Director of the Peradeniya Botanical Gardens in Ceylon, where he had the good fortune to work under Dr. J. C. Willis. At this time rubber production was in its infancy, while rubber was in rising demand for tyres in the new motor industry. Some years before, some trees of Para rubber (*Hevea braziliensis*) had been introduced into Ceylon and Malaya by Sir Henry Wickham from the Amazon region, and these were sufficiently established to serve as material for Parkin's investigations. In the one year that he spent in Ceylon, working under somewhat primitive conditions, he devised the 'acid' technique for coagulation of the latex (little altered in present practice), and also directed attention to the 'wound response' which increased flow of latex and enabled tapping to be carried out almost every other day. These two contributions were of great practical importance to planters and were remarkable achievements for a single year. The opportunity to work in the tropics was an advantage for his later work on flowering plants.

From 1899 until 1911 he studied at Cambridge, working mainly on biochemical lines, and the most important contribution was "The Carbohydrates of the Foliage Leaf of the Snowdrop (*Galanthus nivalis* L.) and their Bearing on the First Sugar of Photosynthesis" (*Biochem. J.*, **6**, 1; 1911). This paper emphasized the importance of cane sugar. During this period he was also much interested in the problem of the flowering plants, and in 1907 he published, in collaboration with Dr. Newell Arber, "On the Origin of Angiosperms" (*J. Linn. Soc. Bot.*, **38**, 29; 1907). This paper gave considerable weight to the view that the Magnoliaceae and Ranunculaceae should be regarded as basic in a natural classification of Angiosperms, rather than the Amentiferae as in the German system; undoubtedly this paper had its influence in determining the pattern of more recent classifications.

A fascinating and original line of research was Parkin's anatomical investigations of the petals of *Ranunculus* species, in which he showed that the peculiar glossiness was due to the structure of a special starch layer which reflected the light. A curious outcome was that a plant listed in the New Zealand Flora as a *Ranunculus* and collected by Dr. W. A. Sledge, of the University of Leeds, proved to be the only species of *Anemone* in the Flora. The results were published in a joint paper (*J. Linn. Soc. Bot.*, **49**, 645; 1935).

From this time on, numerous papers appeared in botanical journals, many of them in the form of reviews of theories of the flower and classification. This was one of Parkin's deepest interests, and, had age permitted, he told me that he would have liked to express his views in a fuller paper on this subject. His last paper was a survey of "The Distribution and Role of Sucrose in Plants" (*J. Indian Bot. Soc.*, **39**, 104; 1960), written at the age of eighty-six.

Parkin took his place as a county councillor in Cumberland and on many local committees and governing bodies of schools, etc., but his interests were concentrated on botany and forestry. He derived great pleasure from an arboretum that he had planted in an old quarry on the estate at Wigton, and one is glad to hear that he was able to visit this as recently as last January. During the First World War, he served as a major in the Fifth Battalion of the Border Regiment, engaged on coastal defence. In the Second World War, he organized Civil Defence in the Wigton area. He kept in touch with botanists from many countries through learned societies, visits abroad and an extensive correspondence. He was unassuming in manner, but in conversation one soon realized what an excellent grasp he had of any subject under discussion; he frequently visited friends in the Department of Botany of the University of Leeds, and one's knowledge was always the richer for such contacts.

He died on March 29, 1964, at his home in Wigton, where he lived with his daughter, Miss Sylvia Parkin. I am indebted to her for supplying much of the information included in this account.

It is interesting that in his ancestry he was connected through his paternal grandmother with Bishop Ridley, martyred during the 1555–58 persecution. Through his maternal grandmother he was connected with Sir Lowthian Bell, of iron ore fame, and whose granddaughter was Gertrude Bell, the famous traveller and archæologist of the Middle East.

British botany owes much to John Parkin, and botanists of his generation, for their fundamental contributions to the subject and their great enthusiasm.

LORNA I. SCOTT

NEWS and VIEWS

The Royal Society of London: Special Election

UNDER the Statute of the Royal Society which provides for the election of persons who either have rendered conspicuous service to the cause of science or are such that their election would be of signal benefit to the Society, the Rt. Hon. the Earl of Iveagh has been elected a Fellow of the Royal Society.

Chief Scientist (Royal Navy): Sir John Carroll, K.B.E.

SIR JOHN CARROLL retired on May 18 from the Admiralty Board as chief scientist (Royal Navy), having acceded to that newly created office on April 1, the vesting day of the new Higher Organization for Defence. After a distinguished university career during which he was a Research Fellow of Sidney Sussex College, an Isaac Newton student, University lecturer in astrophysics and