

ionic protein. Applying the dye-technique, the  $pH_I$  was found to be 5.5 for the chrome-collagen compounds obtained by tanning with the extremely basic perchlorates of chromium. Thus, no appreciable displacement of the original isoelectric point of the collagen occurred due to the non-ionic chrome fixation. The binding of chromium by the non-ionic protein groups should not be expected to affect the location of the  $pH_I$ .

The results of the present investigations suggest that the keto-imide group of collagen is responsible for the irreversible binding of the nonionic chromium complex of extremely basic perchlorates of chromium. No definite information on the nature of the valency forces involved in the attachment of the chromium complexes to the  $-CO \cdot NH-$  link at several points has as yet been obtained, whether the binding takes place by co-ordination of the oxygen atom of the keto-group on the chromium complexes, the formation of some type of hydrogen bond, or by ionization of the  $-NH-$  link, or by a combination of such reactions. Rabin<sup>10</sup> and Murphy and Martell<sup>11</sup> have presented evidence that peptide oxygen rather than peptide nitrogen is involved in the reversible interaction of some metal ions with simple peptides. The findings of improved hydrothermal stability and the changed

reactivity of the chromed collagen, as well as the ability of the non-ionic chromium complexes to precipitate gelatin are satisfactorily explained by a reaction involving co-ordination of the chromium atoms on the oxygen atom of the keto-group of the keto-imide link. The main feature, which is firmly established, is that the compounds formed represent a novel type of metal-protein compounds which may be of value for the location of uncompensated keto-imide links in proteins, for example, by modern optical methods.

A grant from Statens Tekniska Forskningsråd is gratefully acknowledged.

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## OBITUARIES

### Mr. R. W. Sloley

THE news of the death of Mr. R. W. Sloley, of Amersham, Bucks, on August 19 at the age of seventy-nine, has been received with sorrow by a large circle of friends and scholars. He took his degree at St. John's College, Cambridge, and he never lost contact with his University. After graduating, he joined the staff of Liverpool College, but during the First World War he went to the Department of Instrument Inspection of the Air Ministry, where he remained for the rest of his professional career. He speedily made his mark in this Department, and during the War spent some time stationed in France. When peace came, he continued his work at the Air Ministry depot at Kidbrooke, and during his service there he wrote a book on aircraft instruments which ran into several editions and is still in use.

At first he lived at Blackheath, but in the later 1920's he migrated to Amersham, where, while continuing to serve at Kidbrooke, he settled down for the rest of his life in company with his father and his sister, for he never married. Both these relatives died before him, and during the last years of his life he lived alone except for his books and his many friends, to whom he frequently extended hospitality. Early in 1939 he retired from the Air Ministry, and thereafter devoted himself to his many hobbies.

Sloley was a widely travelled man, and in his earlier years had visited South Africa and India, for he had connexions with both countries. His interests outside his regular work included music and the arts (he became vice-president of the Chiltern Arts Club during his residence in Amersham); also science, general archæology and Egyptology. In this last subject he was particularly interested; he studied the Ancient Egyptian language for a year or two at University College, London, but his real interest was in Egyptian mathematics and science, and more

particularly in Egyptian astronomy and methods of measuring time, on which topics he was probably better informed than any English professional Egyptologist. In November 1930 he delivered to the Egypt Exploration Society an admirable lecture on primitive methods of measuring time which was afterwards published in Vol. 17 of *The Journal of Egyptian Archæology*, and in 1942 he contributed the chapter on science to the volume, "The Legacy of Egypt", edited by the late Prof. S. R. K. Glanville. He also served for some years on the committee of the Egypt Exploration Society. He did a great deal of lecturing to schools and societies, and once in the days of 2LO broadcast a talk on "A Day in the Life of an Egyptian Schoolboy". His last contribution to Egyptian archæology was a brief note in Vol. 39 of the *Journal of Egyptian Archæology* on radio-carbon dating as applied to Egyptian antiquities. His interest in ancient science, however, was not confined to Egypt, but extended also to Babylonia, and even perhaps to India. Under his quiet manner lay an unusually wide culture, and he will be greatly missed by all who knew him. R. O. FAULKNER

### Prof. George Fegler

AFTER a distinguished career in medical and biological research, George Fegler died in Cambridge on September 23 at the age of fifty-nine. In Poland, between the time that he received his medical degree (Warsaw, 1924) and the outbreak of the Second World War, he held a number of important research and teaching posts, and in 1939 had just been elected to the chair of physiology at Vilna when he was recalled to the Army. Afterwards he worked in Edinburgh, where, during 1941-46, he was professor of physiology in the Polish Medical School and took part in the war research programme of the University

Department of Physiology. In 1950 he was appointed principal scientific officer at the Agricultural Research Council Institute of Animal Physiology, at Babraham, a post which he held until his death.

His thirty-four years of research covered an unusually wide range of problems; but his greatest interest was in respiratory and cardiovascular physiology, and it was in connexion with problems in these fields that he had recently developed his thermodilution method for the measurement of blood-flow. The method is similar in principle to other indicator-dilution methods, notably the dye-dilution technique, but for certain purposes has a number of advantages over that method. Fegler himself used it successfully to determine cardiac output, renal and portal flow in the dog and sheep; other laboratories had shown considerable interest in the method and had requested his assistance in modifying it for other uses, notably as an aid to clinical investigation.

The method, while favourably received by some, was criticized by others, chiefly on theoretical grounds. Fegler met criticism by testing experimentally each point that had been raised, and extending his controls so that he could assert with confidence that the method fell within the same limits of error as other accepted methods. He also presented a reasoned analysis of the thermodilution curves which showed that perhaps his critics rather than he had strayed into error. But he took no pleasure in polemics. He examined all criticism carefully so as to be sure he had a reliable tool for the research which he had planned. Some progress in

this work, a study of the normal shifts in blood-flow from different organs in relation to the metabolic demands of the body, had already been made by him. It is typical, however, that he was at the same time attempting to improve his methods, so that he could, on one hand, achieve more nearly physiological conditions of experiment, and on the other, come closer to that impossible goal of physiologists, an ideal method of measuring blood-flow.

To his colleagues, with whom he discussed these and other problems and who have in the past benefited so much from his experience and scientific knowledge, his loss is a very real one. CATHERINE O. HEBB

#### Mr. C. C. Mason, O.B.E.

MR. CECIL CHARLES MASON died suddenly on September 9 at the age of seventy-seven.

Mr. Mason graduated with a first in the Mathematical Tripos at Cambridge, and joined the Cambridge Instrument Co. in 1910. He was a joint managing director from that year until his retirement from executive work in 1941, and he remained on the Board until his death. Appointed O.B.E. for his work on shell fuses in the First World War, Mr. Mason was not only responsible for many other technical advances in the instrument field, but also made major contributions to the Company's growth through his wise administration and financial acumen.

Mr. Mason was respected by everyone, and his loss will be keenly felt by a host of friends.

## NEWS and VIEWS

### Atomic Energy Research Establishment, Winfrith Heath: Mr. D. W. Fry

IN 1956 the Atomic Energy Authority decided to build a new establishment of its Research Group. A site was chosen at Winfrith Heath in Dorset, and, after a public inquiry, the Authority was given permission to use it in 1957. Work is advancing rapidly on this new establishment, and the Authority has announced the appointment of Mr. D. W. Fry as the person responsible to the director of the Research Group for its development and the initiation of the programme.

Donald William Fry, who was born at Weymouth in 1910, was educated at Weymouth Grammar School and King's College, London. He worked in the General Electric Company's research laboratories for four years before moving to the Royal Aircraft Establishment, Farnborough, in 1936. There he took part in the development of very high-frequency communication equipment for R.A.F. Fighter Command. During 1940-45 he served in the Telecommunications Research Establishment on the development of microwave radar. Fry, and several of his colleagues, joined the staff of the Atomic Energy Research Establishment in 1946. This group, working in Malvern, demonstrated the practicability of the high-current linear accelerator and the electron synchrotron. Fry was awarded the Duddell Medal of the Physical Society in 1950. He became head of the General Physics Division at Harwell in 1950. The main work of the Division has been in the high-energy accelerator and thermonuclear fields. Fry

was appointed chief physicist of the Atomic Energy Research Establishment in August 1954 and promoted to be a deputy director of the Establishment in February 1958.

### Atomic Energy Research Establishment, Harwell

THE following staff changes at the Atomic Energy Research Establishment, Harwell, are announced by the United Kingdom Atomic Energy Authority:

Dr. J. V. Dunworth, formerly head of the Reactor Division, has been appointed assistant director (reactor research policy). In this post he will be special adviser to the director of Harwell. He is succeeded as head of the Reactor Division by Mr. T. M. Fry, who has been a deputy head of the Reactor Division.

Dr. Peter Thonemann, head of the Controlled Thermonuclear Reaction (Fusion) Division at Harwell, has been granted study leave for one year from March 1959. He will be going to the Institute of Advanced Studies in the University of Princeton, where he will work on plasma physics. In Dr. Thonemann's absence the Harwell fusion programme will be carried forward by his deputy, Mr. R. S. Pease, under the supervision of Mr. D. W. Fry, who is deputy director of Harwell with special responsibility for this work (see also preceding note). Dr. Thonemann will be available for consultation.

### Physiology at the Medical College of St. Bartholomew's Hospital: Prof. K. J. Franklin, F.R.S.

THE news of Prof. K. J. Franklin's retirement from the chair of physiology at St. Bartholomew's Hospital