OBITUARY NOTICES.

L. M. CLARK.

1897—1953.

Dr. L. M. Clark was born on January 24th, 1897, at Ashover, Derby, and educated at the High School, Nottingham, and Sidney Sussex College, Cambridge. He obtained an honours degree in chemistry in 1921, and a Ph.D. of London University in 1923 for research work carried out in Cambridge 1921—23.

Before going to Cambridge Dr. Clark was employed for 1½ years at the National Shell-filling Factory at Chilwell. On leaving the University he took an appointment in the Metallurgical Department of the National Physical Laboratory, Teddington. In 1928 he joined the Research Department of the Alkali Division of Imperial Chemical Industries Limited at Winnington, Northwich, as a research chemist. In 1933 he became Deputy Manager of the Technical Sales Service Department, but on the outbreak of the war in September, 1939, he returned to the Research Department and was in charge of work on a succession of problems being tackled at Winnington on behalf of the Government. During this period he was appointed Assistant Research Manager. In 1949 he returned to the Technical Sales Service Department as its Head, a post he held until his death on September 26th, 1953.

His published scientific work led to the award by his University, Cambridge, at the end of 1949, of the degree of Doctor of Science.

He leaves a widow, herself a Cambridge graduate, and two daughters, the elder of whom took her degree in Geography at Cambridge University.

Dr. Clark was very popular with his colleagues, and had a wide circle of friends in industry and at Winnington. His post caused him to travel frequently in the United Kingdom, and he also visited Russia, South Africa, the United States of America, and Canada. His two great hobbies were fishing and bridge.

E. A. Cooke.

WILLIAM JACOB JONES.

1886—1952.

William Jacob Jones was born in Melbourne on St. David's Day, 1886. The only son of Evan and Ann Jones, he survived an attack of cholera at the age of seven, and the family then returned to Llanrwst, North Wales. When he was fourteen, he left the local Grammar School to enter his father's business, but continued his studies privately, and in two years passed the Matriculation and Intermediate examinations of the University of London. Proceeding to the University College of North Wales, Bangor, in 1905, he graduated with first class honours in chemistry in 1908, and was awarded the Isaac Roberts research scholarship. He commenced research work under the direction of Professor K. J. P. Orton, and obtained the degree of M.Sc. (Wales). Their first papers dealt with the composition of bleaching powder. This work was followed by a study of the chlorination of anilides, to which Dr. Harold King has referred in the following terms: "In the years 1909 and 1910 there appeared a series of papers by Orton and Jones which marks an epoch in the study of the dynamics of halogenation of anilides. These communications are to be classed with the pioneering work of Harcourt and Esson on the application of the mass law. Although Orton was no expert mathematician, he had his Esson in the person of W. J. Jones. Jones and Orton showed that the conversion of chloroamines into nuclear-substituted anilides, a reaction considered by Chattaway and Orton to be an intramolecular process, was in reality an intermolecular one and could be summarised in this way:

$$Cl_2 + H{\cdot}Ar{\cdot}NHAc \rightleftharpoons \begin{cases} Cl{\cdot}ArNHAc + HCl & (a) \\ H{\cdot}Ar{\cdot}NClAc + HCl & (b) \end{cases}$$

A system made up from molecular proportions of *s*-tribromoacetanilide, hydrochloric acid, and acetylchloroamino-*p*-nitrobenzene in 90% acetic acid was found experimentally to contain 50%

of the chlorine originally present as chloroamine in the free state, whilst the calculated value was 60%. This was a brilliant demonstration of the correctness of the authors' views and of the application of the law of mass action."

Jones carried out further research at the University of Manchester with Lapworth (1910—1911), and at Leipzig with Le Blanc (1911—1912), and then returned to Manchester, where he obtained the degree of M.Sc. in 1913. Appointed lecturer in chemistry at Manchester University in the same year, he received the Doctorate of Science of the University in 1918 and was promoted senior lecturer in 1919. His early work with Lapworth was concerned with equilibria in esterification processes. This was followed by an investigation of the action of hydrogen cyanide on aldehydes and ketones, and in 1914 Jones published an important paper on the mechanism of cyanidion catalysis. He then turned his attention to the surface energy of solids and was able to formulate mathematically the influence of particle size on the solubility of barium sulphate, which had been demonstrated experimentally by Hulett. At this time one of his colleagues was J. R. Partington, and they collaborated in a theoretical study of the refractivities of gases. Other papers published by Jones during this period covered such subjects as the estimation of aniline, benzene, and nitrobenzene in commercial specimens, the properties of pyridine bases, the estimation of the methoxyl group (with J. T. Hewitt), a fractionating column with moving parts (with J. E. Myers), and the congelation of essential oils.

His work at Manchester was interrupted by war service. In 1914 he joined the Royal Welch Fusiliers as a Second Lieutenant, was promoted Lieutenant in 1915, and earned the 1914—1915 Star for service with the British Expeditionary Force in France and Flanders. He was seconded to the Ministry of Munitions in 1916, and was promoted Captain in 1919, a rank which he retained on completion of service.

After his appointment to the Chair of Chemistry at University College, Cardiff, in 1921, Professor Jones set his research students to work on a variety of problems among which may be mentioned the solubility of salts in organic solvents (with D. G. R. Bonnell), the photodecomposition of triphenylmethyl, organometallic compounds (with W. C. Davies, W. J. C. Dyke), addition reactions of the azomethine group (with D. Philpott), the action of chlorine on isoprene, viscosity of liquids, adsorption from solution, cohesive forces, and vapour pressure. Having become familiar with a particular field, Jones found pleasure in moving to new pastures, and it it to this trait that we must ascribe the wide variety and range of his interests in physical chemistry and in organic chemistry.

At Cardiff his great gifts as a teacher were much appreciated by his many students. His simple, direct approach and painstaking endeavour to simplify and explain even complicated problems was of considerable benefit to all, and especially to students of the biological sciences. Because he was at heart of a shy and retiring nature, he had little to say in the presence of strangers, but with those whom he knew well he was most affable and gave ample evidence of the wide scope of his reading. He had command of several languages and spoke Welsh and German fluently. He was an able mathematician and a keen amateur astronomer. It is reported in *Nature* that he observed and plotted the track of a daylight fireball over Scotland on Aug. 20, 1932.

Professor Jones expended considerable effort in the planning and furnishing of the new Tatem laboratories which were opened in 1927. The administrative duties of a large department entailed considerable labour, but correspondence was dealt with immediately, and replies were generally written in his own hand and invariably dispatched by return of post. The difficulties encountered during the period 1939—1945 were accentuated by the evacuation to Cardiff of a section of the Ministry of Supply and the chemistry departments of two London Colleges. The lack of laboratory space involved considerable reorganization of classes, and teaching became very arduous. With the initial difficulties smoothed away, Professor Jones once again served his country as an Officer in a Bomb Disposal Unit of the Royal Engineers. On completion of his service, he returned to his department, where he remained until his retirement in September, 1951. Alas, he was not to enjoy for long the rest he had so well earned. He died suddenly at his home in Cardiff on October 14, 1952, leaving a widow and three children.

S. J. H. O. CHARD.
S. T. BOWDEN.

SIR THOMAS TAYLOR.

1895—1953.

SIR THOMAS TAYLOR, C.B.E., M.A., D.Sc., Principal of the University College of the South West, died suddenly on August 29th, 1953, while on holiday in Italy.

Thomas Weston Johns Taylor was born in 1895, the son of the late T. G. Taylor. His family was connected with the French wine industry and he spent a good deal of his boyhood in Bordeaux; to these early connections may be traced his knowledge of French and his cosmopolitanism. He was educted at the City of London School, a fact which made him *persona grata* with another eminent Old Citizen, the late W. H. Perkin, jun., in whose Department Taylor worked in Oxford. He went up to Brasenose in 1913 with an Open Scholarship in Natural Science. He was a pupil of F. D. Chattaway and worked with him for his first year in the old Queen's Laboratory. In 1914 he at once joined the Army and served throughout the war in the Essex Regiment; he was twice wounded in Gallipoli. After the war he returned to Oxford and took First Class Honours in Chemistry in 1920; in the same year he was elected to a Fellowship at Brasenose and was placed in charge of the chemistry teaching. He became a University Demonstrator in 1927. Owing to the nature of Part II of the Chemistry School in Oxford, he was required at once to plunge into research. He needed no urging and at once set to work in the field of nitrous acid chemistry. But before he had brought any of his major investigations to the stage of publication, his accurate and active mind had led to his intervention, with significant results, in two controversial topics of the time. The first was his experimental refutation, in a particular case, of the widely held view that strictly unimolecular reactions were caused by " radiation." The second was his resolution of the " Rivett Paradox," which made it appear that solid phases of invariable composition were thermodynamically impossible. His procedure was to go back to Gibbs's original work and to put it into simpler and more direct language, with the result that the problem vanished after a short Note in the *Journal* (*J.*, 1924, 2016).

As research pupils came along, his work on nitrous acid was speeded up. In the first of three papers (Taylor, Wignall, and Cowley, *J.*, 1927, 1923) he showed how comparatively stable solutions of nitrous acid could be prepared and preserved under a layer of medicinal paraffin, and with such solutions he was able to obtain evidence in support of his view that the equilibrium $2HNO_2 \rightleftharpoons N_2O_3 + H_2O$ is established. A further equilibrium $N_2O_3 \rightleftharpoons NO + NO_2$ tends to be set up but the concentration of nitric oxide cannot exceed a certain limit on account of its small solubility. In subsequent papers (*J.*, 1928, 1099, 1897) he showed that the rates of reaction of glycine, α-alanine, and β-alanine with nitrous acid probably follow a third-order equation, being proportional to the concentrations of " zwitter-ion," undissociated nitrous acid, and nitrite ion.

Quite early in his career Taylor became interested in oximes and in particular in their stereochemistry, which had assumed great importance in connection with the revolutionary views as to the mechanism of the Beckmann transformation necessitated by the work of Meisenheimer. Working with the monoximes of benzil, he began by showing (Taylor and Ewbank, *J.*, 1926, 2818) that in the β-oxime the hydroxyl and the carbonyl group are so situated that co-ordination (hydrogen bonding) can occur between them. This conclusion was supported (Taylor and Marks, *J.*, 1930, 2302) by solubility measurements and by studies of metallic derivatives of the α- and the β-monoxime (Taylor, *J.*, 1931, 2018). This work culminated in 1933 in the fundamental measurements, carried out in conjunction with L. E. Sutton (Taylor and Sutton, *J.*, 1931, 2190), on the electric dipole moments of the " *N*-ethers " of the two *p*-nitrobenzophenone oximes. These left very little doubt that the configurations of the oximes were in accordance with the Meisenheimer mechanism for the Beckmann transformation. The last possible loop-hole was closed in 1933 (Taylor and Sutton, *J.*, 1933, 63) with the determination of the electric dipole moments of the *p*-nitrobenzaldoximes.

Taylor's interest in stereochemical problems continued until the outbreak of war; his last paper (Taylor, Callow, and Francis, *J.*, 1939, 257) concerned the metallic derivatives of hydrazones and of the oxime-hydrazones.

Taylor collaborated with Professor Wilson Baker, at the time a Fellow of Queen's, in the revision of N. V. Sidgwick's great " Organic Chemistry of Nitrogen "; a considerable share of credit for the fact that the vigour and sparkle of the original suffered so little from the inevitable process of re-writing must be given to him. A useful contribution to chemical literature, distinguished for its comprehensiveness and lucidity, was his article on the

" Chemistry of proteins and related substances " in the Chemical Society's *Annual Reports for* 1937. He also edited the second volume of the English revision of " Richter–Anschütz."

In Oxford Taylor will be remembered for his vivid personality and his versatility. He was an admirable Tutor and an inspiring teacher. His interests ranged from bird-watching to modern French poetry, from music (he was an enthusiastic member of the Bach Choir) to travel, both in its more usual and in its less conventional forms. He used the award of a Rhodes Travelling Scholarship in 1931 to visit America. His knowledge of Europe and, in particular, of its localities specially remarkable for good wine and food, was extensive; he also thought nothing of a Long Vacation in Persia, Afghanistan, or the Galapagos islands. He and his wife made their home an envied centre of musical and literary life. He played little part in University administration, which is surprising considering his subsequent career. He served, however, on the Council of the Chemical Society from 1936 to 1939.

A few months after the outbreak of the World War in 1939 he seized an opportunity of being commissioned in the R.E. in a Chemical Warfare Section. He served for a short time at Porton, and then, until 1943, in charge of the Chemical Warfare Branch of the Middle East Command staff at Cairo, being mentioned in despatches. He was then transferred, as a civilian, to be first the Secretary and then the Director of the British Central Scientific Office at Washington, and in 1944 was selected to head the " Operational Research " Division on Lord Mountbatten's staff in Ceylon. He was made C.B.E. in 1946.

The end of the war found Taylor, as he confessed, out of touch with, and feeling little interest in, formal science and its teaching. He came back to Brasenose, but in 1946 was invited to become the first Principal of the University College of the West Indies. Chemistry lost by his acceptance of that invitation, but the influence he was thus enabled to exert in wider fields was more than a compensation. All his energy and " drive " as an organiser and negotiator, as well as his capacity for inspiring his academic collaborators with enthusiasm for his own educational ideals, were required for the task of bringing the new University College into actual existence and presiding over its functioning during the crucial earliest stage. By 1952, he could feel that this task had been essentially accomplished, and (wishing, as he put it himself, to return to this country, rather than to wait until he had to retire to it) he asked to be allowed to " hand over " to a successor. Coming back, he was appointed to succeed John Murray as Principal of the University College of the South West, at Exeter, and flung himself with undiminished vigour into his new duties. He was knighted in July 1952.

He married, in 1922, Rosamund Georgina, the younger daughter of Colonel T. E. J. Lloyd, C.B., of Plâs Tregayan, Anglesey.

D. Ll. Hammick.