evolution of cultural change will be exactly the same in Africa as in other continents. Those who go to Africa must consider it their duty to learn before they start to teach. "There is all Africa, and her prodigies in us."

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NEWS and VIEWS

Deputy Chief Scientific Adviser, Ministry of Defence : Prof. A. H. Cottrell, F.R.S.

On June 30, Prof. A. H. Cottrell left the Department of Metallurgy at Cambridge to take up the post of Deputy Chief Scientific Adviser to the Ministry of Defence. This represents the beginning of a new phase in the career of an outstanding scientist who has already made great contributions in the academic and public sectors of science. He was professor of physical metallurgy at the University of Birmingham from 1949 until 1955 and was then appointed deputy head of the Metallurgy Division of the Atomic Energy Research Establishment at Harwell. From there he went to Cambridge in 1958 as Goldsmiths' professor of metallurgy. The interchanges in his career between academic and applied science environments are representative of Prof. Cottrell's attitude to his work. Although he is a first-rate theoretician, he nevertheless has a deep-rooted belief in the importance of applied science. This is revealed in much of his scientific writing, in which theories are developed not as an end in themselves, but as a means of solving the problems which arise when real materials are used in practice. His gift of picking out the essential features of a problem makes his papers and books stimulating reading for first-year undergraduates and research workers alike, and the same quality is evident in his lectures. He was elected a Fellow of the Royal Society in 1955 and, although still only in his middle forties, he has been honoured by many scientific bodies and universities at home and abroad. While at Cambridge he devoted himself wholeheartedly to both teaching and research, and the results will continue to benefit the Department of Metallurgy for many years to come. He will be greatly missed, but Cambridge's loss is the nation's gain since it would indeed be difficult to imagine anyone better equipped to deal with the responsibilities of his new post.

Ministry of Aviation Appointments: Mr. H. G. R. Robinson, O.B.E.

Mr. H. G. R. Robinson has been promoted to deputy chief scientific officer and appointed head of the Instruments and Electrical Engineering Department at the Royal Aircraft Establishment, Farnborough. Mr. Robinson joined the Guided Weapons Department of the Royal Aircraft Establishment in 1948 after graduating with honours in electrical engineering at the Imperial College of Science and Technology. After a year of postgraduate study at California Institute of Technology in 1952, he rejoined the Guided Weapons Department where he was engaged in theoretical and free flight investigation of kinetic heating at very high speeds. This work led, in 1955, to the design of the *Black Knight* re-entry test vehicle, with which Mr. Robinson was directly concerned. In 1960 he became head of the Satellite Launcher Division of Space Department, Royal Aircraft Establishment, and continued in this Department until his present appointment. His main concern in the Space Department was the British technical contribution to the European Launcher Development Organization (E.L.D.O.) launcher *Europa* I, and development of *Black Knight*, for space applications. Mr. Robinson is a Whitworth Scholar, and was awarded the Bronze Medal of the Royal Aeronautical Society in 1960 for furtherance of ballistic missile techniques.

Mr. R. R. Duddy

Mr. R. R. Duddy has been promoted to deputy chief scientific officer and appointed director of the *Concord* Project in the Ministry of Aviation. Mr. Duddy was educated at Judd School, Tonbridge, and took a first-class honours degree in mechanical engineering at King's College, London. He first joined the Royal Aircraft Establishment in July 1939 as a vacation student in the Aerodynamics Department, and from 1954 until 1959 he was head of the Flight Division of the Department. He then spent two years with the Defence Research Staff in Washington and returned in 1961 to become head of the Naval Air Department of the Royal Aircraft Establishment at Bedford.

Mathematics in the University of Edinburgh: Prof. F. F. Bonsall

Prof. F. F. Bonsall, at present professor of pure mathematics in the University of Newcastle upon Tyne, has been appointed to the McLaurin chair of mathematics in the University of Edinburgh as from October 1. Prof. Bonsall was educated at Merton College, Oxford. In 1947, after an undergraduate career which had been interrupted by six years of wartime service in the Royal Engineers, he graduated with first-class honours, and was appointed to a lectureship in mathematics in the University of Edinburgh. He joined the Department of Mathematics in Newcastle as a lecturer in 1948, was promoted to a readership in 1956, and has held the chair of pure mathematics at Newcastle since 1959. Prof. Bonsall has made substantial original contributions in functional analysis. His early work in this field dealt with some of the more algebraic aspects of the theory of Banach algebras. He then became interested in partially ordered vector spaces, a subject on which he is a leading authority. Generalizing a result of Krein and Rutman, he proved that various classes of positive operators possess positive eigenvectors. His work in this area also includes the study of order ideals, related extension theorems for linear functionals, and numerous applications in other branches of analysis. His recent researches deal with the classification of certain semi-algebras of functions, the structure of locally compact semi-algebras, and the further investigation of the spectral properties of positive operators by means of semi-algebra theory.

Industrial Engineering in the University College of Swansea : Dr. T. O. Jeffries

Dr. T. O. Jeffries, who has recently been appointed professor of industrial engineering in the University College of Swansea, was educated originally as a physicist, having gained an honours degree in physics from New College, Oxford, in 1947, with a special subject in nuclear physics in 1948. After this he was for three years Faraday Fellow at St. John's College, Oxford, during which time, in addition to his tutorial and lecture duties, he was concerned with the borderline between physics and engineering, participating in the design and construction of the Clarendon Laboratory 400-keV and 1-MeV Cockcroft and Walton accelerators, and completely designing and constructing a smaller 100-keV accelerator to study the D–D reaction. From the Clarendon, Dr. Jeffries moved

to the University of Birmingham as lecturer in physics, where among other work he designed and constructed a propane bubble chamber for use with the 100-MeV proton synchrotron. In 1956 he joined the Atomic Power Division of the English Electric Co., where he worked successively as physicist, mathematician and finally as head of the control and instrumentation group, a department of about 140 engineers, scientists, draughtsmen and technicians. While with the English Electric Co., Dr. Jeffries was responsible for designing and building the *Saturn* analogue computer and the smaller *Mars* computer, as well as for the design and construction of a *Monte Carlo* analogue computer which he used for the shielding calculations on nuclear reactors. During this period, Dr. Jeffries became extremely interested in the application of computers to design problems and to the use of data processing techniques to assist with the design of circuits and in the production of wiring and cabling diagrams.

Inorganic Chemistry in the University of Aberdeen : Prof. H. F. W. Taylor

Dr. H. F. W. Taylor took up, on October 1, his appointment as the third professor in the Department of Chemistry of the University of Aberdeen, with special responsibility for inorganic chemistry. Taylor, who hails from Nottingham, studied at University College there, graduating B.Sc. (London) with first-class honours in chemistry; he worked with the late Prof. J. M. Gulland and Dr. (now Prof.) D. O. Jordan on the physical chemistry of nucleic acids—work for which he was awarded a Ph.D. (London) in 1947. On leaving Nottingham he carried out research at Bedford College under Dr. (now Prof.) R. M. Barrer (hydrothermal chemistry of alumino-silicates) and at Birkbeck College under Prof. J. D. Bernal (chemical and crystallographic aspects of the hydration of Portland cement and related topics). For these and later contributions to the chemistry and crystallography of silicates Taylor was awarded the degree of D.Sc. by the University of London in 1957. When appointed lecturer at Aberdeen in 1953 (senior lecturer, 1963) Dr. Taylor continued his studies into the wide field of silicate chemistry especially by the use of X-ray techniques, and he has built up, assisted by Dr. F. Glasser, an active and enthusiastic research team. Investigations are being carried out along two main lines, calcium silicate hydrates and the chemistry of cement hydration—work which gained for him the Mineralogical Society of America Award for 1959, and also on topotactic reactions. His work in these fields is of international repute and he has been invited to take part in and has helped to organize conferences, etc., in Britain, the United States and elsewhere. He is the author of some eighty papers, editor and part author of *Chemistry and Cements*, and co-author with L. Heller of *Crystallographic Data for Calcium Silicates*. Following in the tradition of the Scottish universities, Dr. Taylor has taken, and will continue to take, a great interest in the teaching of the first-year classes. He has found this a challenging problem in both content and method and has introduced, into the practical course, programmed learning, multiple choice testing and the use of the computer for certain types of marking.

Chemistry in the University of Reading

The years 1965 and 1966 form an important period in the development of the Department of Chemistry in the University of Reading. Now established in one of the largest of the new buildings in Whiteknights Park, the Department will at the end of the session 1965–66 lose the services of its present head, Prof. E. A. Guggenheim, who was appointed professor of chemistry in 1946, having been a member of the Department since 1933. An appointment to a second chair in the Department has already been made; Prof. D. Bryce-Smith, professor of organic chemistry, took up that post in June.

The appointment is now announced of professors in physical and in inorganic chemistry. Dr. G. W. Fowles, who will become professor of inorganic chemistry from January 1, 1966, and Dr. H. M. Frey, who will become professor of physical chemistry from October 1, 1966, are both at present on the staff of the University of Southampton.

Prof. G. W. Fowles

During 1943–44 and 1945–46, Dr. Fowles was an analyst in an industrial laboratory, spending the intervening period in H.M. Forces. He entered the University of Bristol in 1946, and in 1949 obtained the degree of B.Sc. with first-class honours in chemistry. He then continued with research and gained his Ph.D. in 1952. Dr. Fowles was awarded the D.Sc. degree in 1964. He was appointed to the Department of Chemistry in the University of Southampton in 1952, where he is now reader in inorganic chemistry. He was Canadian Research Council–Nuffield Foundation visiting professor for 1959 at Laval University, Quebec. He has twice visited the United States, for a Gordon Research Conference and a meeting of the American Chemical Society; and he has spoken at the seventh (1962) and eighth (1964) International Conferences on Co-ordination Compounds. During 1962–65 he was local representative and a member of the Council of the Chemical Society. His research has been concerned mainly with the chemistry of transition metals of the first part of the Periodic Table, although he is also actively working on organometallic compounds of other metals. His present research group is principally concerned with the spectroscopic and magnetic properties of co-ordination compounds of elements of the titanium, vanadium, and chromium sub-groups. He has published numerous papers, and, with E. Cartmell, a book, *Valency and Molecular Structure* (Butterworths, 1956 and 1961).

Prof. H. M. Frey

Dr. Frey, after National Service in the Royal Air Force, entered Balliol College, Oxford, in 1949, and in 1951 was University Gibbs scholar in chemistry. He obtained first-class honours in chemistry in 1953, and then became War Memorial student and Imperial Chemical Industries Research Fellow, gaining his D.Phil. in 1955. During 1955–57 he held a Commonwealth Fund Fellowship at the University of California at Berkeley and at Harvard University. In 1957 he was appointed lecturer in the University of Southampton, and has been senior lecturer since 1963. His principal research has been concerned with the elucidation of the features and mechanism of inter- and intra-molecular energy transfer, particularly in relation to unimolecular reactions. Virtually all this work has been in the gas phase, though at present some investigations are being extended to the liquid phase. Much of his recent work has been on highly vibrationally excited molecules formed by methylene addition reactions, or by the photochemical decomposition of diazocompounds and diazirines.

Microbiology in the University of Sussex : Prof. J. R. Postgate

Dr. J. R. Postgate, who has been appointed to a chair of microbiology in the University of Sussex, was educated at Kingsbury County School and Balliol College, Oxford, which he entered as a Williams exhibitioner in 1941. He graduated in chemistry with honours in 1945, and found his interest in microbiology when taking his Part II in the field of bacterial growth kinetics under Prof. (now Sir) Cyril Hinshelwood. This interest was developed by a year's study of microbial chemistry under the combined tutorship of the late Prof. D. D. Woods and Prof. A. G. Ogston, and his transformation from chemist to biologist was complete when he took his degree of Ph.D. on bacterial drug resistance under Prof. Woods in 1948. He then joined K. R. Butlin's group