

Obituaries

Dr A. D. Wadsley

ON January 6, 1969, Arthur David Wadsley died suddenly in Canberra while chairing the opening session of an international symposium on phase transformations and the Earth's interior.

Born in Hobart in 1918, Wadsley studied metallurgy and chemistry at the University of Tasmania (BSc, 1940; MSc, 1942; DSc, 1956). An interest in chemical crystallography—to become the dominant feature of his career—arose from early research on manganese dioxide in the Minerals Utilization Section of the Division of Industrial Chemistry, Council for Scientific and Industrial Research. Intrigued by his failure to develop a suitable manganese dioxide for dry cells from an anode "mud" produced in the Tasmanian plant of the Electrolytic Zinc Company of Australasia, Wadsley spent five years studying the structure and reactivity of the oxides of manganese and related compounds.

His reporting of this work, comprising brief notes in *Nature* (190, 973; 1952: 172, 1103; 1953) and lengthier papers in specialist journals (*Acta Cryst.*, 6, 433; 1953: 8, 165; 1955: *J. Chem. Phys.*, 22, 346; 1954) set a characteristic pattern for his subsequent publications. At this time, as he laid the foundation for his work on non-stoichiometric compounds, his thinking was influenced by the results of Scandinavian research. This was particularly noticeable in his first paper on the concept of crystallographic shear (*Rev. Pure and Appl. Chem.*, 5, 165; 1955).

When, in 1959, the Minerals Utilization Section was constituted as the Division of Mineral Chemistry, Commonwealth Scientific and Industrial Research Organization, Wadsley became the centre of a widespread programme of collaboration with both Australian and international research workers. Some of this activity was reflected in a series of communications to *Nature*. Simultaneously he accepted an increasingly heavy administrative load and was appointed Chief Research Scientist in 1964 and Assistant Chief of the Division in 1967.

Throughout his scientific career, one of Wadsley's chief driving forces was the desire to bring order into work associated with "defects" in the non-stoichiometric oxides and related compounds of titanium, vanadium, niobium, tantalum, molybdenum and tungsten. He constantly referred to the time when inorganic chemists would be able to design new structures in the solid state at will, and sought the principles which would make this possible. During the Werner centenary celebrations he summarized his work on compounds of the transition metals by claiming that a polyhedron, centred around a transition metal ion in its maximum valency state, is attracted towards similar polyhedra, and unites with them so as to have the maximum edge or face-sharing compatible with the stoichiometry of the phase in which it occurs (*Helv. Chim. Acta. Fasciculus extraordinarius Alfred Werner*, 207; 1967). On this postulate of stable polyhedral groups, Wadsley based his many contributions to the "block" theory of structure, and an extensive review of this work is scheduled to appear in *Perspectives in Chemistry*.

Just before his death he was delighted to hear that one of the three principal interests of the new *Journal of Solid State Chemistry* was to be solid state synthesis and characterization, and he accepted an appointment on the editorial board. His posthumous publications on the nature of defects revealed by electron microscope fringe

patterns will appear in that journal and in *Acta Crystallographica*. They will provide a reminder of a career which was tragically terminated in its prime.

Dr Ellen Gleditsch

THE rapid development of the nuclear sciences in the past few decades has tended to obscure the memory of the pioneers who laid the foundations and were instrumental in the early development of the subject. Ellen Gleditsch, who died in Oslo during the summer of 1968, was one of those pioneers. She was the first student of Madame Curie, from 1907 to 1912.

Great confusion confronted scientists at that time, before the concept of isotopy had been recognized. It was easy to place the newly discovered polonium in the periodic system, and also actinium, but what was to be done with ionium (Th-230), radiothorium (Th-228) and radioactinium (Th-227), the active deposits? To bring some kind of order into this chaos it was necessary to know the physical and chemical properties of these elements, their relationships with other elements and their abundance in nature. The origin of actinium and its ratio to uranium in different minerals was Ellen Gleditsch's special interest. She found a 5 per cent ratio of actinium to uranium, instead of 0.15 per cent in the two Norwegian minerals broggerite and cleveite. She determined the ratio of radium to uranium to almost the value accepted today. The same goes for the half life of radium and the age of minerals; she realized the value of the radioactive property of potassium in geophysics. Soon after the discovery of isotopy her interest was directed towards the determination of the atomic weight of lead and chlorine isotopes separated from uranium minerals. These were the results of her early work during the time which is often called the "heroic" period of the nuclear sciences.

Ellen Gleditsch was Licenciée en Sciences at the Sorbonne in 1912, doctor *honoris causa* from Yale University in 1913–14, and honorary doctor of the University of Strasbourg. She was associate professor of chemistry at the University of Oslo from 1916 to 1929, professor from 1929 to 1946 and professor emeritus from 1946.

After her retirement, Ellen Gleditsch was busy lecturing and writing biographical essays of the Curies, Lavoisier, Gay Lussac and Saint DeVile. France was her second home, to which she returned regularly, and where she was the first woman to receive an honorary doctorate from the Sorbonne. She was also honoured with the Legion d'Honneur.

Correspondence

Coalfield Exploration

SIR,—While agreeing with Spink that an authoritative study of the extremely interesting and varied coalfields of Leicestershire and South Derbyshire would be most desirable, I would suggest that his article published in *Nature* (220, 129; 1968) is perhaps somewhat lacking in objectivity, with generalities not always fully supported by facts.

No exception is taken to much of the factual information published in the article, but I must draw attention to some statements which seem to require more detailed examination and discussion. It is, for example, very much doubted whether there is, in fact, a paucity of marine or "mussel" bands in this area and I also believe many geologists would agree that there is an over-emphasis on earth movements deduced from sedimentological information, indicating that insufficient weight has been given to

the normal deltaic processes. The observations on the grade of the Coal Measures rocks of the area are also, in my opinion, too sweeping and need to be more precisely stated.

Despite these criticisms I feel that Spink has made a useful contribution to our knowledge of the geology of these coalfields and wish to make it clear that the National Coal Board is only too willing to make the geological information obtained from its deep mining activities freely available to serious researchers of the subject.

Yours faithfully,

G. ARMSTRONG

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What will Happen to Geology?

SIR,—It is not my intention to comment on the main theme of the interesting and provocative article entitled "What will Happen to Geology?" published in your issue of March 8 (221, 903; 1969) but to correct a misunderstanding in the article on the usage of this council's research vessel John Murray. This ship was provided specifically for university departments to carry out marine research; the needs of the IGS to study the geology of the continental shelf are met by hiring suitable ships and equipping them for the purpose. The limitations implied by your article have therefore not occurred.

Yours faithfully,

R. L. J. WRAIGHT

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Demise of a Department

SIR,—My attention has been drawn to your discussion of the proposal to close the Department of the History and Philosophy of Science at University College London (*Nature*, 221, 995; 1969). You show that this would reduce the establishment of the college by four, and add that "eventually a second readership would lapse". In case the chairman of the University Grants Committee reads your article and thinks that this further reduction in the number of senior posts is imminent, I wish to point out that the readership in question is mine, and that it is due to lapse when I retire, about 1990.

You should know that Professor P. K. Feyerabend is on the staff of this department, not the Philosophy Department; that at least thirteen of our former students are lecturers, readers or professors at other universities, not a handful; that we have about twenty MSc students, not a dozen; and that we also have nearly twenty PhD candidates, and not just "the occasional" one.

Yours faithfully,

W. A. SMEATON

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Philosophy of Science,
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University News

Professor G. V. Raynor, dean of the faculty of science and engineering, has been appointed deputy principal at the **University of Birmingham**.

Professor A. R. Battersby, University of Liverpool, has been elected professor of organic chemistry at the **University of Cambridge**.

Professor G. W. Mackey has been elected to the new Landon T. Clay professorship of mathematics and theoretical science at **Harvard University**.

Four new professorships in aspects of urban life, provided by a grant from the Ford Foundation, have been established at **Harvard University**. Dr J. F. Kain has been elected professor in economics, Dr L. Rainwater professor in sociology, Dr N. Glazer professor in education and social structure, and Dr F. E. Smith professor in advanced environmental studies in resources and ecology.

Dr E. A. Friedman, Chicago Medical School, has been appointed professor of obstetrics and gynaecology at **Harvard University**.

Dr C. M. Pierce has been appointed professor of education and psychiatry at **Harvard University**.

The title of professor of medicine has been conferred on **Dr T. R. E. Pilkington**, St George's Hospital Medical School, **University of London**.

The title of professor of histopathology has been conferred on **Dr G. B. D. Scott**, Royal Free Hospital School of Medicine.

The title of professor of pharmacognosy has been conferred on **Dr E. J. Shellard**, Chelsea College of Science and Technology.

Appointments

Mr C. W. Mallinson, County Treasurer, West Sussex County Council, has been appointed deputy chairman of the **National Computing Centre**.

Mr S. Spain has been appointed head of the Electrical, Chemical and Shipbuilding Industries Division of the Ministry of Technology.

Dr J. Raftery has been elected president of the **Royal Irish Academy**; **Dr V. C. Barry** has been elected treasurer.

Announcements

Alfred North Whitehead Fellowships for advanced study in education at Harvard University have been awarded to Mr R. H. de Lone, Professor T. F. Green, Mr J. W. Guthrie, Mr S. Halperin, Mr K. Haskins, Mr T. E. Nelson, Mr K. R. Plath and Mr M. Trammel. They will use the university's resources and those of the Cambridge-Boston community for a year of independent study.

The **Bertner Foundation Award** of the University of Texas M. D. Anderson Hospital and Tumor Institute at Houston will be awarded to **Professor Boris Ephrussi**, director of the Centre de Genetique Moleculaire, Centre Nationale de la Recherche Scientifique of France, for his contribution to cancer research; **Dr T. S. Painter**, professor emeritus of zoology at the University of Texas, will receive the first **Anderson Award** for scientific creativity and teaching.

The **American Institute of Physics** and the **United States Steel Foundation** have instituted a new science writing prize for physicists and astronomers. Material submitted must have appeared in newspapers, magazines or books intended for the general public between June 1, 1968, and May 31, 1969. Further information may be obtained from the Public Relations Division, American Institute of Physics, 335 East 45th Street, New York, NY 10017, USA.