

chair of chemistry at Lafayette, which position he held until his death in November last.

Bingham's first discussion on viscosity and fluidity was published in 1906, and he made this subject his life's work. His main contributions to science were in this field of flow processes, on the definition of fundamental properties, on the precise measurement of viscosity, fluidity, plasticity and related characteristics, and on the design of instruments for precision measurements of plastic flow. The original type of plastometer, devised by Bingham, is still in use, with slight modifications, in many laboratories to-day. We are indebted to Bingham for a clear and concise statement of our knowledge of flow phenomena, and for building this knowledge into a coherent science, to which he gave the name, now universally used, of 'rheology'. It was Bingham, also, who introduced the term 'poise' as the basic unit of viscosity, and whose persistent interest and encouragement resulted in the investigation by the National Bureau of Standards of the absolute value of the viscosity of water. (See J. R. Coe and T. B. Godfrey, *J. App. Phys.*, **15**, 625; May 1944.)

More than a hundred original papers on rheological subjects were published by Bingham and his asso-

ciates during the past thirty years, but Bingham's interests were not, by any means, confined solely to this particular field. Physiology, chemical education, inorganic chemistry, mensuration, and even the illumination of roads and highways owe much to Bingham's interest and suggestions for improvement.

The tributes in this memorial edition from the American scientific societies bear adequate testimony to the high esteem in which Prof. Bingham was held as a man of science, to his capabilities as a lecturer and chairman of committees, to his technical skill, to his pleasant personality and friendly spirit, and to his indefatigable enthusiasm and work on behalf of the Society of Rheology, which he formed, and on behalf of the other professional bodies of which he was an active member.

WE regret to announce the following deaths:

Prof. Ulric Dahlgren, professor emeritus of biology in Princeton University, on May 20, aged sixty-five.

Mr. H. E. Mitton, an authority on mining research, on September 7, aged seventy-five.

Dr. W. Payman, of the Safety in Mines Research Board, on August 12.

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NEWS and VIEWS

New Air Speed Record

A NEW speed record of 616 m.p.h. was set up by Group Captain F. M. Donaldson, leader of the R.A.F. High-Speed Flight on September 8. The aircraft was a Gloster 'Meteor', jet propelled, with Rolls Royce 'Derwent' internal combustion turbine engines. The actual course was a three-kilometre one as laid down by the F.A.I. international regulations, off the Sussex coast between Rustington and Kingston Gorse. The R.A.F. High-Speed Flight is stationed at Tangmere, near Chichester, and has been waiting for some time past for suitable weather. The principal requirement is a high temperature, in order to reduce the retarding compressibility, and had the air been as warm as might have been expected at this season a much higher speed could have been reached. The speed is taken by regulation as the average of four runs over the course, two in each direction. The recorded speeds were 623, 610, 623 and 609 m.p.h., which beats the previous record made by Group Captain H. J. Wilson, on an earlier design of 'Meteor', by 10 m.p.h. The machine appeared to be under perfect control in spite of the bumpy air conditions and a stiff breeze blowing across the course. This is a tribute to both the skill of the pilot and the accuracy of the design, as when flying near the sonic speeds the aircraft is susceptible to changes in compressibility effects that set up a see-saw track which not only reduces the overall speed over the course, but is also dangerous to the structure of the machine.

It is disappointing that a speed of 1,000 kilometres an hour (621.3 m.p.h.) was not reached, as it was felt that this round figure would have sounded more impressive in countries that use the metric system. The air temperature was about 69° F. during the runs. Had it been more than 75° F.—a not unfair expectation at this time of the year—a speed of about 630 m.p.h. could probably have been attained. Records of this kind are made on machines specially designed for maximum speed, and carefully maintained and nursed for the attempt. It is nevertheless

interesting to note that the impact of this development on ordinary everyday flying has raised the speeds of this considerably. Squadron Leader Cotes-Predy flew a 'Meteor Mark IV', similar to the standard R.A.F. high-speed fighter, from Paris to Geneva on September 9 at an average speed of 510 m.p.h. This machine has been purchased by the Swiss military authorities as part of the equipment of a high-speed development flight in that country.

American Chemical Society Awards:

Priestley Medal

THE Priestley Medal, the highest honour in American chemistry, has been awarded to Prof. Roger Adams, head of the department of chemistry in the University of Illinois and one of the nation's leading organic chemists. The Priestley Medal, named after the discoverer of oxygen, is the fourth high scientific honour won by Prof. Adams within the past year. While he was serving with General L. D. Clay (deputy military governor of the American Occupation Zone in Germany), he received the Davy Medal of the Royal Society of London in recognition of his extensive researches in the field of organic chemistry. After he returned to the United States, he was awarded the Theodore William Richards Medal of the American Chemical Society's North-eastern Section for conspicuous achievement in organic chemistry. Later he was selected to give the first Remsen Memorial Lecture at the Johns Hopkins University in Baltimore, inaugurating an annual series founded by the Maryland Section of the Society in honour of the late Ira Remsen, pioneer in American organic chemistry. Prof. Adams, who was president of the American Chemical Society in 1935, also holds the Willard Gibbs Medal of the Society's Chicago Section, granted in 1936 for his work in synthetic organic chemistry and his achievements as a teacher, and the William H. Nichols Medal of the New York Section, conferred in 1927 for distinguished contributions to original research.

Born in Boston on January 2, 1889, Prof. Adams is a graduate of Harvard University, where he received the A.B. degree in 1909, the A.M. in 1910 and the Ph.D. in 1912. He later received the honorary degree of Doctor of Science from the Polytechnic Institute of Brooklyn, North-western University and the University of Rochester. He went abroad to study at the University of Berlin and at the Kaiser Wilhelm Institute during 1912-13. From 1913 to 1915 he was an instructor in organic chemistry at Harvard and at Radcliffe College. He joined the faculty of the University of Illinois as assistant professor in 1916, becoming a professor in 1919 and head of the chemistry department in 1926. He was a member of President Roosevelt's Science Advisory Board in 1934-35, and in World War II he served in Washington with the National Defense Research Committee. Prof. Adams is a fellow of the American Association for the Advancement of Science and was chairman of Section C of the Association in 1927. He is a member of the American Academy of Arts and Sciences and the American Philosophical Society, and an honorary fellow of the Chemical Society of London. He has been a member of the Council and chairman of the Chemistry Section of the National Academy of Sciences, and a member of the fellowship board of the National Research Council. Besides serving the American Chemical Society as president and chairman of the Board of Directors, he was a director during 1931-36 and 1940-43, and a councillor-at-large during 1923-29.

Eli Lilly and Company Prize

DR. JOHN D. FERRY, assistant professor of chemistry in the University of Wisconsin, who developed valuable surgical products from blood plasma during the War, has been given the Eli Lilly and Company Prize of 1,000 dollars awarded by the American Chemical Society for "versatile and incisive studies on the chemistry, especially the physical chemistry, of large molecules". Besides doing war-time research on blood plasma in the Department of Physical Chemistry at the Harvard Medical School, Dr. Ferry served on a special advisory panel of the Army Quartermaster Corps on the preparation and use of plastics and films from high polymers. Dr. Ferry was born at Dawson, British Columbia, on May 4, 1912, and graduated from Stanford University; during 1932-34 he worked at the National Institute for Medical Research in London. His early work was upon the size of viruses as estimated by their passage through membranes. Studies of polyisobutylene and polystyrene and of rubber followed, leading to an interest into the properties of large protein molecules and of the mechanical properties of their gels. A photo-elastic method for the study of elasticity and rigidity of gels over a wide range of frequencies has contributed greatly to our understanding on one hand of such systems as polystyrene-xylene; on the other, of the gelation of gelatin and the clotting of blood. His knowledge of proteins in the solid state has led during the War to the production, from the proteins concerned with the natural clotting process, of fibrinogen plastic and fibrin tubes and films. Fibrin film has found acceptance in neuro-surgery as a dural substitute and is now being applied to other surgical uses. Prepared entirely from fractions of human plasma, these products approach those that occur in Nature in their physical properties, in that they do not lead to foreign body reactions, and in their ultimate fate in the body.

Prof. P. van Oye

PROF. DR. P. VAN OYE, the leading Belgian hydrobiologist, was sixty on August 24, an event which has been duly celebrated by his numerous friends and followers; other festivities, of a more official character, are to follow shortly. Prof. van Oye can look back on more than thirty years of splendid biological work, including for a great part studies on plankton of many countries, in most cases the result of personal exhaustive and exhausting field-work; in this last respect, he most certainly can compete with the keenest of his younger followers. He wrote numerous and important papers on Desmids (on which he is one of the world's leading authorities), Rotators, Rhizopods, etc.; he is the discoverer of the periodical evolution of the plankton in tropical regions, and, together with Apsteins, of the rule on the variation of plankton-facies. Another very important discovery of his is the constancy of the pH in a given aquatic biotope. Prof. van Oye spent several years in Indonesia and the Belgian Congo, and shortly before the War visited Iceland. The Biogeographical Institute, University of Ghent, has done and is doing useful work under his leadership. The patriotic attitude of Prof. van Oye under the occupation caused the Germans to relieve him of his post and even to imprison him for some weeks.

New European Scientific Periodicals

THE revival of scientific thought in Europe has been signalled by the reappearance of familiar journals which were suppressed during the German occupation, and by the publication of new journals. *La Nature* and *Revue générale des sciences* in France were swift to recover, and they were joined a few months ago by the new journal *Atomes*. A little more than a year ago, *Experientia*, described as a "monthly journal of pure and applied science", under the direction of A. v. Muralt, L. Ruzicka and J. Weigle, with Dr. H. Mislin as editor, was published by Verlag Birkhäuser AG. of Basle. The general language used is German; but announcements are printed in German, French, Italian and English. The contents consist of general illustrated articles (in one of the languages mentioned), followed by "brief reports" of current work corresponding to the "Letters to the Editors" in *Nature*, most of which have summaries in a language other than that of the 'report' itself, and book reviews, etc. The published price is 2 Swiss francs each issue plus postage. From Germany comes *Zeitschrift für Naturforschung*, published by Dieterich'sche Verlagsbuchhandlung, Wiesbaden, by authority of the Military Government. This appeared in January of this year, under the direction of A. Sommerfeld, K. Clusius and A. Kühn, and is also a monthly journal. It contains short original articles, preliminary announcements of investigations, reviews of recent work, and news; the whole is in German.

Freedom of Intellectual Liberty

IN our age the idea of intellectual liberty is under attack from two directions. On one hand, there are its theoretical enemies, the apologists of totalitarianism; and on the other, its immediate practical enemies, monopoly and bureaucracy ("The Prevention of Literature." By George Orwell. (Polemic No. 2.) London: Rodney Phillips and Co., 1946. 2s. 6d.). The independence of the writer and the artist are being eaten away by vague economic forces and also