

tions of these steels are concerned, M. Chevenard says that "chromium exerts a very favourable influence upon the mechanical properties of the austenitic nickel steels, especially at high temperatures. At the same time it renders these alloys very resistant to oxidation and to the attack of a large number of corrosive agents." These facts are already being applied industrially in the newer varieties of stainless iron and steel.

The volume ends with a paper on butt-ended standards of length which forms the continuation of previous work.

### The Supply of Information.

IN October 1924 the President of the Board of Education appointed a Departmental Committee to inquire into the adequacy of the library provision already made under the Public Libraries Acts, and the means of extending and completing such provision. Those who recognise that an efficient library system is the essential foundation for progress in education and culture, without which no people can hold its own in the struggle for existence, will welcome the Report<sup>1</sup> of the Public Libraries Committee, a volume of some 350 pages now published, as offering the basis for a reorganisation long overdue.

The Committee recommends a national system of co-operation between libraries, whether borough, urban district, county, or special, with the Central Library for students, reconstituted as a department of the British Museum, acting as a central bureau of exchange for the whole system, and as a national lending library to supplement the resources of other libraries. It is contemplated that, in the first place, an application for a rare or expensive book needed for the purposes of research will be made to the local public library. If the public library does not possess the book and does not consider it reasonable to buy it, the librarian will refer to the 'regional library,' provided such an organisation has come into being. If the regional library cannot supply the book, the application will be sent to the Central Library. The Central Library will supply the book from its stock, endeavour to borrow the book from the institution likely to possess it, accepting responsibility, or purchase the book.

A considerable proportion of the books for which application will be made under this scheme will be scientific literature, and in particular scientific periodicals. The necessity for a central library to provide for the needs of scientific workers has been widely recognised and was emphasised by Dr. Chalmers Mitchell at a conference of the Association of Special Libraries and Information Bureaux in 1925, when he said: "Some of the periodicals are contained in no library in Great Britain. I am glad to be able to state that the Library of the Science Museum is making a great effort to fill the gap. In my view there is no more urgent need than the establishment in this country of a central library, the duty of which shall be to contain a copy of every periodical publishing scientific research."

The nucleus of such a library already exists in the Science Library at South Kensington, with its great collection of periodicals. The Committee suggests that the most easy and least expensive way of solving the problem will be to make the Science Library complete, and it recommends that an additional sum of £3500 a year, with a small contingent increase of staff, should be granted to enable the Science Library

to obtain most of the volumes of which it stands in need. The Science Library has already assumed many of the functions of a central library, by the extension of borrowing facilities to approved institutions where scientific or technical work is carried on, and should be the principal source on which the Central Library will depend for the supply or loan of books needed by research students in science.

If scientific research is the foundation of commercial prosperity, it is no less true that such research cannot be carried out efficiently without the means of consulting the records of previous work. The organisation necessary to secure this end would not be very great. It is estimated that the cost of all the proposals, including those relating to the Central Library and the Science Library, would not exceed £12,000 a year during the next few years, while the benefit to learning, research, manufactures, and trade can scarcely be estimated.

### University and Educational Intelligence.

EDINBURGH.—At the recent graduation ceremonial, the honorary degrees conferred included the following: *Doctor of Divinity*: The Right Rev. Ernest William Barnes, Lord Bishop of Birmingham; *Doctor of Laws*: Sir John Carruthers Beattie, Vice-Chancellor and Principal of the University of Capetown; the Abbé Henri Breuil; Prof. C. E. Jenkin, professor of engineering, University of Oxford; Prof. J. C. Meakins, professor of medicine, McGill University, Montreal; Prof. A. C. Seward, Master of Downing College and professor of botany, University of Cambridge. The degree of Doctor of Science was conferred on Douglas A. Allan, *thesis*—"The Geology of the Highland Border from Tayside to Noranside"; T. W. M. Cameron, *thesis*—"Studies in Economic Helminthology"; John Macqueen Cowan, *thesis*—"The Forests of Kalimpong—An Ecological Account"; J. F. V. Phillips, *thesis*—"Forest Succession and Ecology in the Knysna Region"; C. M. Yonge, *thesis*—"Structure and Function of the Organs of Feeding and Digestion in the Septibranchs, Cuspidaria, and Poromya."

LONDON.—A course of four lectures on "Heat Transfer in Reciprocating Engines, including Internal Combustion Engines," will be given (in English) by Prof. Dr. Adolf Nägel, professor of engineering in the Technische Hochschule, Dresden, at the Institution of Civil Engineers (by kind permission) on Oct. 11, 14, 18, and 21, at 5.30 P.M. The lectures will be illustrated by lantern slides. Admission is free, without ticket.

THE International Federation of University Women in its Occasional Paper, No 6, describes Crosby Hall, the Federation's new office which was recently opened by the Queen as a club-house. University women carrying on research or other post-graduate work in London will be eligible for residence at the Hall, if members of the Federation, and the dining-hall and common rooms are available for all members visiting or living in London. The same pamphlet contains addresses by Prof. Zimmern and Prof. Kristine Bonnevie on the work of the League of Nations Committee on Intellectual Co-operation and the Federation's collaboration with it, and a note on the functions of the American National Committee on Intellectual Co-operation, described by Prof. Zimmern as the model national committee. This American committee, organised at the beginning of last year, undertakes to procure or compile whatever information from the United States may be needed in connexion with any investigation being made by the International Institute of Intellectual Co-operation,

<sup>1</sup> Public Libraries Committee. Report on Public Libraries in England and Wales, pp. 356. Cmd. 2868. (London: H.M. Stationery Office, 1927.) 6s. net.

the working instrument of the League of Nations Committee. It has been interesting itself in the question of obtaining financial support for the Geneva School of International Studies and for a working library for the Institute. The Federation has a committee on standards which is engaged in investigating the thorny problem of assessing the relative values of the degrees and diplomas granted by the various universities and other institutions of university standing.

THE Trustees of the Beit Fellowships for Scientific Research at their recent twelfth annual meeting elected the following to fellowships, the proposed course of research being indicated after the Fellow's name: Mr. I. Vogel, ring formation (Organic Chemistry Laboratories of the Imperial College, under Profs. H. B. Baker and J. F. Thorpe); Mr. K. V. Thimann, the effect of electrical currents on proteins (Bio-chemistry Department of the Imperial College, under Sir John Farmer and Prof. S. B. Schryver); Mr. A. G. Forsdyke, the nature of the motion in the wake of a body moving in a viscous fluid as a contribution towards the problems of fluid resistance (Mathematics Department of the Imperial College, under Profs. S. Chapman and H. Levy). All these fellowships are of the value of £250 a year and tenable at the Imperial College of Science and Technology. In addition, the Trustees approved the extension for a second year of the fellowships held by Mr. J. Topping for research on the mechanical equilibrium of crystal lattices, Mr. J. W. Maccoll for studies in the motion of viscous fluids, and Mr. G. H. Mitchell for further work on the geology of the Borrowdale volcanic series of Kentmere, Westmorland. The experiment during the past year, under which the tenure of these fellowships was tentatively made for two years instead of one year as before, having proved successful in every way, the Trustees have now adopted it as the tenure basis of the new fellowships now announced and of future awards.

THE report on the work of the Department of Petroleum Technology of the Sir John Cass Technical Institute for the Session 1926-1927 has recently been issued, and the Principal, Mr. George Patchiu, is able to show some satisfactory results of development. Since the last annual report (1925-26) the Department has been enlarged by the addition of a Petroleum Technology Laboratory with a fully equipped lecture room adjoining the same; it is hoped that this extension will provide the necessary facilities for advanced study and research. The schedule of lectures given during the past session comprises lectures on petroleum technology (in three parts), introduction to the chemical and physical properties of petroleum, properties, applications, and examination of petroleum, and the applications of engineering and mechanical drawing. For those who have little or no previous knowledge of the fundamental sciences, there is a preliminary course, including elementary chemistry, physics, and practical mathematics. It is not clear from the report what subjects are comprised in the petroleum technology course, other than part 3 dealing with internal combustion engines and colloids in relation to petroleum. It is to be hoped that provision is here made for those who wish to acquire some knowledge of the geological aspects of the industry, also that the important subject of economics of petroleum is included. Close contact has been kept between the school and various oil companies in London; in this connexion lectures have been given by members of the staffs of the latter, and thus essential practical knowledge is placed at the disposal of the students, a vital factor in the training of all concerned with the petroleum industry, whatever particular branch is favoured.

## Calendar of Discovery and Invention.

July 24, 1747.—About the same time that Franklin was experimenting on lightning conductors, William Watson (1715-1787) made experiments which appeared to show that the passage of electricity was instantaneous. Some of these experiments were made in the summer of 1747. On July 24 of that year Watson, assisted by Charles Cavendish and Martin Folkes, sent a charge of electricity through 800 feet of water at the New River, Stoke Newington. The following year Watson, at Shooter's Hill, also sent discharges through 12,276 feet of wire.

July 24, 1842.—“That a glacier moves like a sluggish river, and under the same laws,” wrote J. D. Forbes, “was an idea which first clearly entered my mind as a definite probability on the evening of the 24th July 1842, when from the heights of the Charmoz I saw the dirt bands stretching across the breadth of the M<sup>er</sup> de Glace at my feet like floating scum on a partially stagnant stream . . . and from that hour the viscous or plastic theory was to me a conviction and a reality.”

July 25, 1675.—Halley was the son of a wealthy soap boiler whose town house was in Winchester Street, in the city of London, and it was here that Halley, on July 25, 1675, observed an eclipse of the moon. He was then nineteen years of age and this eclipse formed the subject of his earliest published observations.

July 25, 1909.—The first flight in an aeroplane across the English Channel was made by Louis Blériot, who on July 25, 1909, crossed from Calais to Dover in a monoplane of 28 feet span, weighing with the pilot 462 pounds. The machine was fitted with a three-cylinder Anzani engine developing 24 horse-power.

July 26, 1790.—What was probably the earliest advertisement of a steamboat appeared in the *Federal Gazette and Philadelphia Daily Advertiser* on July 26, 1790. This gave notice: “The Steamboat sets out to-morrow at 10 o'clock from Arch Street Ferry, in order to take passengers from Burlington, Bristol, Bordentown, and Trenton, and return next day. Philadelphia, July 26, 1790.” The steamboat referred to was one of those built by the unfortunate pioneer, John Fitch.

July 28, 1851.—In the development of the study of the various phenomena associated with total eclipses of the sun, especial interest is attached to the total eclipse of July 28, 1851, observed with success in Norway and Sweden. It was on this occasion that the prominences were closely followed and described. Hind wrote of “a long range of rose-coloured flames”; Dawes of “a low ridge of red prominences, resembling in outline the tops of a very irregular range of hills,” while Airy termed the portion of this “rugged line of projections” visible to him the “Sierra.”

July 29, 1857.—An outstanding improvement in the manufacture of iron rails was the introduction of the ‘three high mill’ in place of the ‘two high mill.’ The story of its introduction was told by the great American ironmaster, John Fritz, in 1899. Declared by others “a visionary scheme and one that had never been done before, and had it been practical it would have been done long ago,” the first ‘three high mill’ was put into action by Fritz himself at the Cambria Iron Company, U.S.A., making the company a great financial success and giving it a rail plant far in advance of any other plant in the world.

July 30, 1828.—An account of the Brownian movements witnessed by Robert Brown was privately circulated under this date, with an additional account the following year dated July 29, 1829. E. C. S.