(92 miles), and Osaka (348 miles) leads to the following conclusions:—(1) The frequent occurrence of earthquakes, both unfelt and strong, terminated at or immediately before the opening of the eruption; (2) the principal centre of the after-shocks coincides roughly with the centre of elevation of the sea-bed to the north of the Sakura-jima, which is 8·9 miles from Kagoshima; (3) the mean duration of the preliminary tremor at this place was 1·94 seconds, corresponding to a focal distance of 8·9 miles, from which it follows that the focal depth was very small; and (4) in the after-shocks the first distinct displacement was usually directed towards or from the source of disturbance, while the mean directions of the maximum vibrations were parallel and perpendicular to the line joining the craterlets on the two flanks of the volcano. C. D.

University and Educational Intelligence.

AN introductory public lecture to a series of seven courses of lectures on the history of science will be given by Sir W. H. Bragg at University College (University of London) on Thursday, October 7, at 5 p.m. The courses arranged are as follows:—The General History and Development of Science, Dr. A. Wolf; The More Important Developments in Physical Science during the Nineteenth Century, Sir W. H. Bragg, Prof. E. J. Garwood, Mr. D. Orson Wood, and others; Egyptian Science, Prof. Flinders Petrie; The History of the Biological and Medical Sciences from Early Times to the Eighteenth Century, Dr. Charles Singer; The History of the Biological Sciences since the Eighteenth Century, Prof. J. P. Hill; Elementary Astronomy, treated Historically, Prof. L. N. G. Filon; and The History of Mathematics up to the Eighteenth Century, Mr. T. L. Wren.

IN the annual report for 1919–20 of the Coventry Public Libraries several points are worthy of notice. Figures are given showing the number of issues which have been made during the past and the previous year. Of the total of 380,170 issues of books in 1919–20, 167,758 were of technical and literary books, while 144,296 were works of fiction. The figures are significant of the use to which the library is put by the inhabitants. As compared with the previous year, the number of issues of technical works has increased by 26,976, while the increase for fiction was only 2087. These figures indicate the revival of study which was to be expected with the return of students to peaceful occupations. In the issues of the home-reading libraries similar figures were observed, the increase in the demand for works on the arts and sciences being 6449. On the other hand, research work, by which is meant the study of the accumulated data of a subject before proceeding with investigations, has declined since the armistice. Only one-twelfth of the 82,245 volumes in stock are classed as fiction. The libraries are intended chiefly for the use of students, and their continued popularity shows that they are appreciated as such.

THE President of the Board of Education has addressed a letter to the Vice-Chancellor of the University of London (Dr. Russell Wells), under date September 24, with reference to the Government offer of a site for the University behind the British Museum, explaining that, with the consent of the vendor (the Duke of Bedford), it is possible for the offer to remain open until the Senate's meeting on October 20, but no longer. Mr. Fisher expresses general approval of the proposed conditions to be attached to acceptance of the offer which were discussed by the Senate in July, save that respecting freedom from debt as regards the new buildings before the old buildings are vacated. He suggests a revision of the wording of this condition, but admits that the Government fully shares the view as to the undesirability of the University and King's College entering upon the occupation of their new buildings under an embarrassing load of debt. Mr. Fisher further explains that the Government offer is not available for any alternative site, since on a review of all the circumstances the Government has come to the definite conclusion "that the site behind the British Museum is the most suitable and the only one which they would feel justified in acquiring for offer to the University." In conclusion, Mr. Fisher expresses his earnest hope that the Senate will decide to accept the offer which the Government has made.

THE educational system of Japan (Bulletin No. 57, 1919, of the United States Bureau of Education) is the result of a fusion of the traditional training in national humanistic studies with that in modern science. Progress is possible on the latter side only. Technical education of an elementary type is given in the vocational schools, to which students who have passed through the elementary schools are admitted. In 1915–16 the number of technical schools attached to such vocational institutes was 9001, an increase of 533 over the preceding year; while that of the private technical schools was 366, an increase of 20. Approximately 95,000 pupils were enrolled in all schools of this kind, exclusive of continuation schools. The technical continuation schools admit students who have passed the standard of the elementary schools, though the individual school authorities have power to admit or refuse any candidate. In the year 1915–16 407,600 male pupils and 89,601 females were enrolled in these schools, an increase of nearly 50,000 over the numbers joining during the previous year. Within the next six years it is proposed to spend some four and a half million pounds on higher education. The technical and high schools already in existence will accommodate 14,000 students only, while during the year 1917–18 about 56,000 applied for admission. This money will therefore be devoted to the building of ten new high schools and eighteen new technical and commercial institutes. Great prominence is given to the rapid but efficient training of teachers of all grades.

Societies and Academies.

PARIS.

Academy of Sciences, August 30.—M. Henri Deslandres in the chair.—G. **Humbert**: An arithmetical link between the real ternary quadratic forms and the indefinite forms of Hermite.—H. **Deslandres**: The recognition in stars of the successive layers of their atmosphere and the periodic variations of these stars. From the study of the calcium lines in the solar spectrum the existence of three layers in the solar atmosphere has been deduced. The same method can be applied to the fixed stars, and an account is given of the results obtained up to the present by various observers.—E. **Ariès**: The specific heat of saturated vapours at low temperatures. Reply to a communication by G. Bruhat.—J. **Andrade**: The regulating organs of chronometers.—E. **Jouguet**: Waves of shock in solid bodies.—M. **Galbrun**: The deformation of a helical spring.—M. **d'Azambuja**: The spectrum of the new star in Cygnus. On August 25 and 28 the spectrum of the new star presented the appearance usual with novæ in the course of the first stage of their evolution.—M. **Burson**: The spectrum of Nova Cygni.

—C. **Raveau**: The thermodynamical properties of fluids in the neighbourhood of the critical state.—MM. **Orékhoff** and **Tiffeneau**: The hydrobenzoin transposition. The influence of the paramethoxy-substitution on the dehydration of the triarylglycols.—G. **Zeil**: The ascending movements of the earth's crust and the recurrences of subterranean erosion.—E. **Aubel**: The influence of the nature of the carbon compounds present on the utilisation of nitrogen by *Bacillus subtilis*.

September 6.—M. Léon Guignard in the chair.—A. **Lacroix**: The regular grouping of two different minerals constituting certain ores of iron and titanium.—M. **Laubeuf**: A small submarine for oceanographic work. Details of design and equipment of a small submarine, 18·8 metres in length and of 50 tons displacement, for use in oceanography. It would sustain the pressure of water at depths of 80 to 100 metres, and, it is estimated, would now cost 600,000 francs to build, although in 1907, when the plans were first drawn up, it could have been built for less than a third of that sum. The work suggested for this submarine includes collecting samples from the ocean-floor, water at various depths, plankton, and observations on temperature and transparency of water and the direction and velocity of the currents.—P. **Humbert**: Hypercylindrical functions.—C. **Nordmann**: Observations of the new star in Cygnus, made at the Paris Observatory with a heterochrome photometer. In this apparatus the ratio of the intensities of the star studied and a known star is compared in various regions of the spectrum by equalising by means of Nicol prisms the brightness of the star under examination and that of an artificial star observed simultaneously through a coloured screen. It was found that the magnitude of the new star changed from 3·43 on August 27 to 4·01 on August 29. The brightness of the new star is, therefore, rapidly decreasing. On the first date the star had an effective temperature of 6100° C., which on the later date had increased to 7800°. Attention is directed to the fact that the increase of effective temperature is accompanied by a diminution in the brightness, contrary to what would have been expected.—H. **Grouiller**: First observations of Denning's nova made at the Lyons Observatory. Measurements of the magnitude of the star on August 23, 24, 25, 26, and 27. The brightness passed through a maximum on August 24 and then rapidly decreased.—J. **Guillaume**: Observations of the sun made at the Lyons Observatory during the first quarter of 1920. Observations were possible on sixty-eight days, and the results are summarised in three tables showing the number of sunspots, their distribution in latitude, and the distribution of the faculæ in latitude.—J. **Rouch**: Inversions of temperature in the lower atmospheric layers in the Antarctic.

WASHINGTON, D.C.

National Academy of Sciences (Proceedings, vol. vi., No. 3, March).—S. **Flexner**: Encephalitis and poliomyelitis. A short sketch of the present state of knowledge relative to these two diseases.—A. F. **Kovarik**: A statistical method for studying the radiations from radio-active substances and the X-rays, and its application to some X-ray problems. A continuation of the work of Kovarik and McKeehan. The author finds 7×10^{10} γ-rays from radium B and C per second per gram of sodium instead of 3×10^{10} formed by Lawson and Hess.—L. B. **Loeb**: The nature of the heat production in a system of platinum black, alcohol, and air. Of the two theories that the heat is due (1) to the adsorption of alcohol and (2) to the oxidation of the alcohol at the platinum surface, the latter is substantiated.—H. **Noguchi**: *Leptospira icteroides* and yellow fever. A special organism, *Leptospira icteroides*, has been detected in certain cases of yellow fever. Guinea-pigs have been inoculated with it by Stegomyias, but until further studies have been made its standing as the inciting agent of yellow fever cannot be regarded as certain.—S. **Hecht**: Human retinal adaptation. A binocular reaction is involved; in all essentials the mechanism underlying the initial phase of retinal sensitivity in dim light is the same as involved in the initial process of photoreception in Mya and Ciona.—L. **Page**: A kinematical interpretation of electromagnetism. The equations of electrodynamics are shown to be simple kinematical relations between the moving elements which constitute lines of force.—A. A. **Michelson**: The laws of elastico-viscous flow, ii. A criticism of the formula which combines the laws of Larmor and Maxwell; an elaboration with many data of a previous paper of the same title.—H. **Shapley**: A note on a simple device for increasing the photographic power of large telescopes. A short-focus lens is placed in the converging beam at an appropriate distance in front of the photographic plate, giving high speed and reducing the scale on the photograph.—L. R. **Sullivan**: Anthropometry of the Siouan tribes. Of interest (1) because accurately describing and defining the Siouan type and showing its relationship to American Indian tribes already described, and (2) because of the intermixture of two widely separated races represented by this series of individuals.—F. M. **Guyer** and E. A. **Smith**: Transmission of eye-defects induced in rabbits by means of lens-sensitised fowl-serum. The defects have been transmitted to the sixth generation.—H. G. **Barbour** and J. B. **Hermann**: The mechanism of fever reduction by drugs. Antipyritic drugs increase the blood-content of dextrose. In fevered animals this is accompanied by dilution of the blood, with resulting fall in temperature.—E. H. **Hall**: Inferences from the hypothesis of dual electric conduction: The Thomson effect. A tabulation of a great variety of data correlated with theory under either of two hypotheses of electron equilibrium in metals unequally heated.—C. L. E. **Moore** and H. B. **Phillips**: Note on geometrical products. Development of a series of geometrical products, independent of the dimensions of space, intermediate between the progressive and the inner product.

Books Received.

The Manufacture of Sugar from the Cane and Beet. By T. H. P. Heriot. (Monographs on Industrial Chemistry.) Pp. x+426. (London: Longmans, Green, and Co.) 24*s*. net.

Children's Dreams. By Dr. C. W. Kimmins. Pp. 126. (London: Longmans, Green, and Co.) 5*s*. net.

Margarine. By W. Clayton. (Monographs on Industrial Chemistry.) Pp. xi+187. (London: Longmans, Green, and Co.) 14*s*. net.

Weeds of Farm Land. By Dr. W. E. Brenchley. Pp. x+239. (London: Longmans, Green, and Co.) 12*s*. 6*d*. net.

Geologie des Meeresbodens. Band ii., Bodenbeschaffenheit, Nutzbare Materialien am Meeresboden. By Prof. K. Andrée. Pp. xx+689+7 Tafeln. (Leipzig: Gebrüder Borntraeger.) 92 marks.

Insect Adventures. By J. H. Fabre. Pp. xii+308. (London: Hodder and Stoughton, Ltd.) 8*s*. 6*d*. net.

The Psychology of Dreams. By W. S. Walsh. Pp. xi+361. (London: Kegan Paul and Co., Ltd.) 12*s*. 6*d*. net.

Among the Ibos of Nigeria. By G. T. Basden.