maximum and minimum occur in the same months at the two stations.

A very complete investigation follows into the secular change, based on a table, on p. 287, of mean annual values at Parc St. Maur reduced to Val Joyeux, and at Val Joyeux, extending from 1883 to 1921. Some small differences may be noticed from M. Dufour's table on p. 95. On p. 288 reference is made to the possible influence of sunspots on secular change. As several magneticians have supposed such an influence to exist, it is important to note that M. Angot's results are wholly negative: "il semble impossible de retrouver . . . la moindre trace d'une périodicité de onze années." Secular change has followed almost identical courses at Paris and London. The change of D in late years has been very rapid, the easterly movement at Paris from 1916 to 1921 being 48·1′. H attained a maximum in Paris in 1912. Afte falling continuously until 1913, I has been rather oscillatory, there being a rise from 1914 to 1918, but a fall since.

As a final contribution to the subject of secular change, M. Angot has tried to represent the value of D at Paris from 1541 to 1921 by a simple harmonic fluctuation about a mean value. The formula giving the best results is

$$D = 6{\cdot}55^\circ + 15{\cdot}85^\circ \cos 2\pi(t - 1814)/480,$$

t being the date in years. The agreement between this formula and observation is quite good from 1541 to 1891; but since 1881 the excess of the observed westerly declination over that calculated has steadily increased until in 1921 it was 3·2°. The publication of this volume promises well for the future of the new Institute of Geophysics of the University of Paris.

C. CHREE.

University and Educational Intelligence.

THE Department of Aeronautics of the Imperial College of Science and Technology, which was established in 1920–21, has issued a pamphlet showing the courses available during the session 1923–24. The work is conducted in three sections, design and engineering, meteorology, and navigation, and a complete course normally occupies two years, the second often including research and experimental work.

THE university extension division of the University of Colorado exemplifies the wide range of services offered by a modern state university in America. This "division," described as "simply a vehicle by means of which the various departments of the university may be made available to the people of Colorado," includes not only a department of instruction (correspondence, class, vocational, and visual), but also a "department of public service" comprising bureaus of community organisation (for promoting public health, child welfare, recreation, and kindred subjects), business and governmental research, library extension, home-reading courses, high school debating league, high school visitation, and supply of public speakers. The range of public service which the university is willing to undertake is, in fact, limited only by its capacity to perform them.

FOR many years an admirable system of continuative education has been given in Great Britain in H.M. Dockyard Schools. Boys enter the dockyards as the result of competition, and the effect of this is a high standard of teaching in the primary and secondary schools of dockyard towns. When the apprentice has entered the dockyard, he has to attend school for eleven hours each week, partly in the afternoons in his working hours, and partly in the evenings. He is under strict naval discipline during these educational periods, and absence from school without sufficient cause leads to loss of pay, or to suspension or dismissal if the offence is repeated. Attendance is compulsory for every apprentice in the first year, but at the end of each of the four years of the normal course the least successful students are sent away from school. There is thus a continual weeding out of the mentally unfit, with the result that, at the end of the fourth year, the students who remain represent the best products of a wise combination of theoretical and practical training and are able to compete successfully for any scholarships in which applied science and mathematics are given prominence. The announcement of the result of this year's competition for Whitworth senior scholarships and Whitworth scholarships affords a remarkable example of this fact. The number of competitors for the former—of an annual value of 250*l.* tenable for two years—was 19, and for the latter—annual value of 125*l.* tenable for three years—was 142. Of the two senior scholarships awarded, one was to a former dockyard apprentice, now at the Royal Naval College, Greenwich. Of the six other scholarships, four were awarded to dockyard apprentices, and of the twenty-five Whitworth prizes of 10*l.* each given to unsuccessful candidates, twenty-one were awarded to dockyard apprentices. These splendid results are most creditable to the instructors in H.M. Dockyard Schools, and they show that the Admiralty system of education is a potent force for technical training and development in Great Britain.

THE prospectus for 1923–24 of university courses in the Manchester Municipal College of Technology contains the new regulations for the B.Sc. Tech., which provide for higher courses, distinct from, and at least one year in advance of, the ordinary degree courses, to extend over three years from the standard of the present intermediate examination for the degree, or the Higher School Certificate. The college offers courses of post-graduation and specialised study and research in various branches of engineering, applied chemistry and chemical technology, textile industries, applied physics, and mining engineering. The calendar of the Merchant Venturers' Technical College, Bristol, gives particulars of university degree courses, including the Bristol "sandwich" scheme of training for engineers. This comprises three periods of ten months each in the university, followed severally, the first by 14, the second by 2, and the third by 14 months in certain engineering works to which the university undertakes to recommend suitable students. Loughborough College, which has on its Board of Governors representatives of the Universities of Cambridge and Birmingham as well as of the Leicestershire County and Loughborough Town Councils, publishes full details of its equipment and courses in engineering and chemical technology and of its School of Industrial and Fine Art, Junior College, and extra-mural department, together with a list of some 250 students who qualified in 1922 for the College diploma, conferred for the first time in that year. The diploma course covers five years and its special feature is that, unlike the various "sandwich" systems, it provides for continuously concurrent training in engineering theory and practice. The Sir John Cass Technical Institute, London, announces, among others, special courses of higher technological instruction in brewing and allied industries, petroleum technology, colloids, alternating currents and electrical oscillations, metallography, foundry practice, mining and surveying.

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