owing to want of details for some countries. A tabular statement gives for a number of stations for which long series of observations were available the normal rainfall and the percentage of years with deficiency (1) between 30 and 45 per cent., (2) between 45 and 60 per cent., and (3) more than 60 per cent. In India places on the coast usually fare better than those in the interior; but burning sun and hot-dry winds during a long break in the rains do much more harm than in some other countries. In the United States, *e.g.* a deficiency of rain produces nothing like the damage that it does in India, while in Europe the liability to failure in the crops is not in the least comparable with that of India. In South America, Brazil and the Argentine Republic show nothing worse than a few cases of deficiency between 30 and 45 per cent., but in Chile, Santiago shows a considerable number of cases of deficiency in the three classes above mentioned; in some parts of Chile there may be a year without any rain whatever.

THE January number of the American journal *Good Lighting* contains an article by Prof. Gotch, of Oxford, which gives a valuable summary of our present knowledge of the properties of the eye when used for detecting and observing distant coloured lights, such as are seen at sea. The normal eye under such conditions recognises a red light as red over an area of the retina the radius of which is three or four times that over which a green light is recognised as green. Outside this area the red light is not seen at all, while the green light outside its area of recognition is seen as a bright white light. In view of these facts, Prof. Gotch suggests that in the absence of binoculars, on which in practice the recognition of the colour of a distant light depends, it should be noted whether the light, apart from its colour, is seen better by oblique than by direct vision; if so, it is a green or white light. If it is seen better by direct than by oblique vision it is red.

RED BOOK No. 176 of the British Fire Prevention Committee deals with tests made on a new celluloid substitute, intended to reduce the risks of fire from the use of kinematograph films. The material was "Cellit," which is an acetyl-cellulose, manufactured by the Bayer Company, Ltd., and resembles celluloid in all respects except that it is far less inflammable and appears to be practically free from the dangers which attend the use of celluloid. As the result of stringent tests to which it was subjected, the material was awarded the committee's certificate of "non-flaming." A copy of the report can be obtained from the secretary of the committee, 8 Waterloo Place, Pall Mall, S.W.

*The Engineer* for February 28 contains an account of an automatic electric light plant manufactured by Messrs. R. A. Lister and Co., Ltd., of Dursley, Gloucestershire. This plant is intended for private house installations, and consists of a petrol engine, dynamo, automatic starting switch, and water tank, the whole being mounted on two cross girders providing facility for setting down and removal. A small battery is supplied, of capacity very much below that of our ordinary private electric lighting plant. When the battery is charged and no lights on, the engine is at rest. If lights are switched on in number below that capable of being dealt with by the normal discharge of the battery, the engine remains at rest until the battery voltage drops to a certain value. On this voltage being reached, current is automatically sent through the dynamo, and runs it as a motor, thus starting the engine, an operation facilitated by the exhaust valve being automatically held open. When the battery is sufficiently charged, the engine stops again. The engine will also start and keep running if the demand is higher than that which can be dealt with by the battery alone. Exhaustage of the battery by reason of failure of the engine to start when required is prevented by a time-limit circuit-breaker, which allows starting current to pass through the dynamo for a limited period only. The whole arrangement seems likely to minimise the troubles which occur in small lighting sets owing to improper handling of the batteries.

THE issue for 1912 of the "Year-Book of the Scientific and Learned Societies of Great Britain and Ireland" has now been published by Messrs. Charles Griffin and Co., Ltd. It is described on the title-page as a record, compiled from official sources, of the work done in science, literature, and art during the session 1911–12, and in consequence its appearance is a little belated, and the information provided about some associations rather behind the times. But the present is the twenty-ninth issue of a work of reference which has proved its utility to workers in science and literature; its welcome would be even greater if it could be published in October, when the academic and scientific sessions begin.

## OUR ASTRONOMICAL COLUMN.

DISCOVERY OF A COMET 1912*d*.—From *The Times* of February 26, we learn that a faint comet was discovered by Mr. B. Lowe, at Laura, South Australia, on December 31, 1912. According to the report by Mr. Dodwell, director of the Adelaide Observatory, the object was visible in a small telescope, and was seen to have a short tail; its position on December 30, at 5.30 p.m. (G.M.T.), was about 4° south of Spica, and it was travelling southwards so rapidly that the position on January 5 was about $\alpha = 14h.\ 30m.$, $\delta = 29°\ 50'$ S. An approximate orbit gives February 3 as the time of perihelion passage, when the comet was probably some sixty million miles from the sun, and indicates that the least distance from the earth occurred about the time the object was discovered, and was about twenty-five million miles. Mr. Dodwell also states that Mr. Lowe anticipated Mr. Gale in the discovery of comet 1910*a*, but did not notify the fact until later.

AN INTERESTING OCCULTATION.—On March 13 an interesting occultation will be provided by the moon passing in front of the Pleiades. As new moon occurs on March 8, our satellite will, at the time of the occultation, present a fairly thin crescent, and the several stars of the group will disappear at various points on the dark limb, to reappear at the bright limb. The first bright star to disappear will be Electra (mag. = 3·8), which will enter near the southern horn at 10h. 11m. p.m. Then will follow Merope

(mag.=4·3), hidden from 10h. 7m. to 11h. 2m.; Alcyone ($\eta$ Tauri, mag.=3·1), from 10h. 47m. to 11h. 25m.; Atlas (mag.=3·8), from 11h. 20m. to 12h. 9m. (midnight); and Pleione (mag.=5·2), from 11h. 26m. to 12h. 7m. Asterope, Taygeta, and Maia will not be occulted, and it will probably surprise many people to observe how much larger the Pleiades group apparently is than the moon; about one degree, or two lunar diameters, separate Atlas from Taygeta or Electra. Occultations of the Pleiades will also occur, in daylight in Great Britain, on July 28 and October 18.

PUBLICATIONS OF THE VIENNA OBSERVATORY.—We have received vols. xxi. and xxii. of the *Annalen der K.K. Universitäts-Sternwarte in Wien*, edited by Prof. Hepperger. The former contains the results secured with the 27-in. Grubb refractor during the period 1903–06, and deals with a great number of observations of planets, comets, and nebulæ. The second volume is divided into two parts, the first dealing with planet and comet observations made with the 6-in. Fraunhofer refractor by Dr. J. Holetschek during 1903–10, and the second, by Dr. J. Rheden, giving an account of the observing station, and the observations made, at Sonnwendstein, from November, 1909, to 1910. The Sonnwendstein station is at an altitude of 1523 m., and the daily notes concerning the atmospheric conditions and their influence on the observations are of special interest.

ASTRONOMICAL YEAR-BOOKS.—"The Observer's Handbook for 1913," published by the Royal Astronomical Society of Canada, is a very useful, though small, volume, which contains a great deal of information set out in a form most useful to the amateur astronomer. In addition to various ephemerides it gives the astronomical phenomena for each month, and a detailed summary of special stellar objects which are available for observation month by month. It also contains four very useful and clear star charts, covering the whole sky, and a brief account of "Recent Progress in Astronomy," written by Mr. W. E. Harper.

The *Annuario* of the National Observatory of Brazil contains the usual full complement of ephemerides and astronomical and physical tables. An interesting map is also included, showing the central lines of all the total eclipses of the sun visible in Brazil between the years 1912 and 2162, as prepared by Prof. D. Todd.

## THE EUGENICS EDUCATION CONFERENCE.

THIS conference was organised by the Eugenics Education Society for the purpose of opening up discussion on the possibility and advisability of infusing the eugenic ideal into the minds of school children and on the best methods for so doing. More than 400 headmasters and headmistresses or their representatives assembled in the large hall of London University on March 1 to take part in the debate, and it is in some ways to be regretted that with so large and expert an audience the subject discussed should have been rather sexual hygiene than eugenics. The relation between the two subjects was so clearly and admirably pointed out by Major Darwin in his presidential address on the eugenic ideal, that it is difficult to understand why so many subsequent speakers should have appeared to regard them as identical.

The discussion at any rate had the merit of showing how much the minds of the more earnest educationists are exercised in the question of instruction in sexual hygiene. The objections to its introduction into schools fall into three classes. In the first place it is maintained that the growing mind should be kept free from thoughts on sexual matters; to which it may be answered that practical experience shows this to be impossible. In private schools, attended by boys of nine to fourteen years of age, such subjects are certainly discussed, and it cannot be supposed that the pupils of corresponding ages in public elementary schools, with their ampler experience of the seamy side of life, are behindhand in this respect.

Secondly, there are many who say that it is practically impossible to introduce the subject in a fitting manner. These were answered by Mr. Badley, headmaster of Bedales, the well-known coeducational school, and by Miss Bonwick, headmistress of the Enfield Road Primary School, who each described their own methods. Miss Bonwick's speech is worthy of special mention, as her eloquence and enthusiasm made a marked impression on the audience. Prof. J. Arthur Thomson also dealt with this aspect of the subject clearly and wisely.

Thirdly, it is said that instruction as to sex should be given by the parents, to which it may be answered that in most cases the parents are quite unfit to give it.

Major Darwin, speaking in the name of the Eugenics Education Society, did not attempt to teach the teachers on these matters, but urged that in all institutions where sex hygiene is taught it should be taught in connection with the eugenic ideal. His address, together with those of the headmaster of Eton, the Principal of Bedford College, Prof. J. Arthur Thomson, and Mr. Badley, and the reports of other speeches, will be published in the April number of *The Eugenics Review*, and have therefore scarcely been touched on here. E. H. J. S.

## NAPIER TERCENTENARY CELEBRATION.

IN the year 1614 John Napier, Baron of Merchiston, published his "Mirifici Logarithmorum Canonis Descriptio," a small quarto volume, the influence of which upon the development of mathematics, especially as an instrument of calculation, cannot be overestimated. The council of the Royal Society of Edinburgh, mindful of the greatness of the boon conferred on science by Napier's invention, convened a committee representative of some twenty societies, corporations, and institutions to discuss the proposal to hold a celebration in memory of the event. The universities and colleges of Scotland, the Faculty of Actuaries, the Edinburgh Mathematical Society, the Institute of Bankers, and other like bodies, also the Royal Society of London and the Royal Astronomical Society, were represented by delegates to the first meeting of the committee, which was held in the Royal Society Rooms, 22 George Street, Edinburgh, on Saturday, February 22. Mr. J. R. Findlay, one of the representatives of the Edinburgh Merchant Company, was voted to the chair.

Dr. Knott (general secretary, Royal Society of Edinburgh) and Dr. A. E. Sprague (Faculty of Actuaries) were appointed honorary secretaries in connection with the celebration, and Mr. Adam Tait, Royal Bank of Scotland, was appointed honorary treasurer. With these as officials, an executive committee was nominated to carry into effect the following resolutions:—

That a congress be held in the summer of 1914, to be opened by a public reception and an address by an