

(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 nebulae. 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

ing 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

eminent man on some aspect of Napier's life and work; that, in response to an invitation from the directors of Merchiston Castle School, a garden-party be held in the grounds of Merchiston Castle; that papers be read on methods of calculation and of mathematical teaching; that exhibits be made of all kinds of calculating machines, of logarithmic and other mathematical books which are necessary for calculation, and of objects of historic interest associated with the name of Napier; that eminent mathematicians be invited from foreign countries to take part in the celebration; that a memorial volume be published containing the more important of the addresses and communications; that, to meet preliminary expenses, a donation list be opened, to which societies and individuals may contribute; that those interested in the proposal be asked to become founder members, the subscription being £2; and that the ordinary subscription be kept as low as possible.

The executive committee was given powers to add to its number and to appoint subcommittees to take charge of the special departments of work indicated above, and of any other lines of development which might occur to them.

#### THE METHOD OF "SHOCK-EXCITATION" IN WIRELESS TELEGRAPHY.

IN *Die Naturwissenschaften* of January 24 there appears an excellent short descriptive article on the principles and the advantages of the "shock-excitation" method of generating electrical oscillations, written by Dr. G. Eichhorn. The method of shock-excitation is used in wireless telegraphy on the large scale by the Gesellschaft für drahtlose Telegraphie ("Telefunken" system), and was first properly investigated and explained by Max Wien. Its essence consists in using a very short-lived oscillatory discharge in a primary circuit, to excite oscillations in an antenna arranged as a secondary circuit, the life of the primary oscillation being, in the ideal arrangement, just so long as to admit of the transference from primary to secondary of the maximum fraction of the initial energy—that is, the energy stored on the condenser in the primary circuit just before the beginning of its discharge. The points especially discussed are the conditions governing, and the means of realising, this ideal arrangement.

Dr. Eichhorn starts with the fact that in a pair of coupled circuits the phenomenon known as "beating" takes place, and that in the time of a beat the oscillatory energy passes from the primary to the secondary and back again. The time of a beat depends on the closeness of the coupling, being shorter with closer coupling. But in the quenched spark method of exciting oscillations the stoppage of the primary oscillation is effected by cooling the spark—that is to say, by de-ionisation of the spark-gap—and the critical moment for the stoppage is the first occasion on which the whole energy passes from the primary to the secondary, namely the moment of the middle of the first beat in the secondary circuit. Thus the better the quenching the closer can the coupling be made. The author shows that the primary must be tuned to the secondary the more exactly, the less effective the quenching is. Among the advantages claimed for the method that of economy is placed first, and a comparison of published researches shows that this method of shock-excitation may have an efficiency of 75 per cent. as against the 25 per cent. of the ordinary spark or the 10 per cent. of the Poulsen arc method.

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#### A SUPERANNUATION SCHEME FOR ENGLISH UNIVERSITY TEACHERS.

THE advisory committee on the distribution of Exchequer grants to universities and university colleges in England has issued its second report (Cd. 6617). In the first report it was recommended that a certain proportion of the grant of 149,000*l.* available for distribution among the English colleges should be reserved pending consideration of a superannuation scheme, and should be regarded as applicable to the institution of such a scheme and to other purposes.

Several conferences have been held between a subcommittee of the advisory committee and representatives of the universities and colleges concerned, existing schemes have been examined, the possibility of a federated scheme has been considered, and the present report gives the governing principles which the committee suggests should underlie each scheme.

I. *Scope*.—(a) The new scheme should come into force on October 1, 1913, when—

(1) It should be compulsory on all new entrants in receipt of a salary of not less than 300*l.* a year.

(2) All new entrants in receipt of less than 300*l.*, but not less than 200*l.* a year, should be entitled to join the scheme.

(3) Any new entrant in receipt of less than 200*l.*, but not less than 160*l.* a year, should, with the consent of the governing body, be allowed to join the scheme.

(4) Any member of the existing staff who satisfies the salary conditions under (1)–(3) above should, with the consent of the governing body, be allowed to join the new scheme under such provisions as to his interest (if any) in any existing scheme of superannuation as may be approved by the governing body.

(b) Provided always that no member of the staff should have a claim for inclusion in the scheme who does not, in the opinion of the governing body, devote his main time to his duties as a member of the teaching or administrative staff.

II. *Contributions*.—(a) The total contributions in all cases should be 10 per cent. of the salary, except that in the case of salaries above 1000*l.* a year no contributions should be made in respect of the excess above 1000*l.*

(b) The normal contributions should be 5 per cent. of salary by the beneficiary and 5 per cent. by the institution, but if the governing body desire, it should be able to increase its proportion of the total 10 per cent. and diminish correspondingly the proportion payable by the beneficiary.

(c) If a person is a member of the staff of two or more institutions both within the federated system, the combined salary should be taken into account and the institutions should contribute *pro rata*.

III. *Benefits*.—(a) The benefit should include an annuity on reaching the age at which the benefit matures, or, so far as the governing body thinks desirable in each case, an equivalent cash payment. The beneficiary should, however, have the option of choosing a form of provision which secures in addition a benefit in the event of death.

(b) The age at which the policies mature should be fixed at sixty.

IV. *Means of Securing the Benefit*.—Every beneficiary should have the option of securing his benefit by means of an insurance policy. The governing body should have the power, however, if it thinks desirable, in individual cases, and if the beneficiary concurs, to accumulate the contributions by separate investment in trustee securities on behalf of the beneficiary. These separate investments may be in addition