

APPLICATIONS for grants in aid of scientific investigations bearing on agriculture to be carried on in connexion with a university, university college, or other approved institution or society in England and Wales during the academic year beginning Oct. 1 next are invited by the Ministry of Agriculture and Fisheries. Conditions on which the grants will be made are to be found on Form A.53/T.G., copies of which are obtainable from the Secretary of the Ministry, 10 Whitehall Place, S.W.1. The latest date for the return of completed forms of entry is May 15.

SECONDARY education in England and America is the subject of an article by Dr. Grizzell, professor of secondary education in the University of Pennsylvania, appearing in the December number of *School Life*. This is the fortieth of a series of articles sponsored by the National Committee on Research in Secondary Education, and records some of the conclusions reached as the result of a carefully planned co-operative study undertaken by a joint committee of experts of the two countries in 1928. Dr. Grizzell recognises the existence in both of a tendency in the direction of wider educational opportunity for the adolescent; but the resultant general reorganisation has been more rapid in the United States. The recent development in England of the higher elementary and central schools is compared with the high school movement which began in the United States almost a century earlier. He notes also a tendency in both countries to extend the period of secondary education upward. The 'junior college' movement in America is the counterpart of the development in England of two-year courses of specialised study after the 'first' school examination, but is, to all intents and purposes, a separate institution and avoids extreme specialisation in the academic field. The greater part of the article is devoted to a survey of contrasting practices and divergent tendencies which the author has observed in every important aspect of secondary education in the two countries. Some of these differences are summed up in the dictum, "To the English teacher, education is dominantly an art; to the American it is rapidly becoming a science".

THE United States Commissioner of Education, discussing, in his report for 1928-29, recent significant events and tendencies in higher education, gives the first place to increased scientific investigation of institutional problems and objectives. Such investigations have been reported during the year by scores of universities. Scientific and semi-scientific methods of investigation have been ousting the older methods of philosophy and mere observance of tradition. William James's passion for grappling with 'stubborn facts' seems to pervade the learned world, and this is attributed to necessity rather than choice, for the increasing industrialisation, machine production, changing of social customs, and other characteristics of a fast evolving civilisation make imperative a correspondingly rapid adaptation on the part of educational institutions, and for this they find themselves compelled to depend more and more on research and scientific study. Changes in general organisation of collegiate work are illustrated by the rapid growth of 'junior colleges' (including the first two years of the traditional 4-years liberal arts college course): the increase in their number during the year amounted to 25 per cent. Registration of full-time students in colleges and universities meanwhile increased by only 2 per cent. With some of the pressure of numbers removed and with a continued increase in financial support, stress may now be put, says the Commissioner, on quality of output. Institutions are studying, as never before, both the quantitative and qualitative demands by society for their human product.

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Birthdays and Research Centres.

Mar. 29, 1890.—Dr. H. SPENCER JONES, F.R.S., H.M. Astronomer at the Cape of Good Hope.

The erection of a large reflecting telescope in the southern hemisphere is an urgent need. It should have an aperture of at least 72 inches, since, for many purposes, great light gathering power is essential, and it should be equipped with a spectroscope adapted for one-, two-, or three-prism dispersion. Such a telescope would be available for determining the radial velocities of faint stars, and for the study of distant nebulae and other problems which are beyond the reach of existing instrumental equipment. The full interpretation of many observations obtained with large instruments in the northern hemisphere is dependent upon similar observations being secured in the southern hemisphere.

In recent work, the need has been felt of a publication in which are summarised the analyses of spectra for which the multiplet relationships have been investigated. The identified energy levels in the atom and the excitation potentials and multiplet identifications of individual lines should be given. Many of the original papers are in publications which are not available for reference anywhere in South Africa.

April 4, 1852.—Prof. A. P. COLEMAN, F.R.S., emeritus professor of geology in the University of Toronto.

Recent work along the St. Lawrence and near Moose Factory and Churchill on Hudson Bay proves that the marine beds, long known in those regions, include not only postglacial deposits, as usually stated, but also interglacial beds. The interglacial sea reached twice the height of the postglacial one. The last glaciation in eastern America was much less massive than an earlier one, suggesting that the greater load of ice implied a correspondingly greater depression of the lowlands. How close to isostatic equilibrium do such adjustments come, and how much lag is to be expected when the load of ice is removed? Have similar relations been found between interglacial and postglacial marine levels in northern Europe?

Societies and Academies.

LONDON.

Physical Society, Feb. 6.—E. B. Moss: A ballistic recorder for small electric currents. The standard thread recorder is so modified that it records ballistic throws in instead of the usual steady deflection. By this means, the current-sensitivity may be increased at least twenty-five times.—F. J. Scrase: The instrumental phase-difference of seismograph records: an illustration of the properties of damped oscillatory systems. A discussion is given of the method of interpretation of the maxima shown on the records of earthquakes during the surface-wave phase. The usual procedure is to treat the waves (which actually appear as beats) as being truly simple harmonic. In general, this procedure does not necessarily lead to the correct interpretation. In direct registration, the true earth maximum may have occurred one half-period later than the time obtained by the usual correction. With galvanometric registration, the maximum may have occurred either one, two, or three half-periods earlier than the time indicated by the usual formula due to Galitzin. For direct registration, the phase correction at present in use appears to be as good as one of the alternatives. For galvanometric registration, the correction suggested by