

discusses the American faith in universities. The institution and development of universities, each of which is wholly dependent upon a particular State, is, the writer maintains, the most conspicuous activity that has of late been shown in America. The American recognises more and more that university life, under favourable conditions, can give a training in comradeship and personal character which is one of the best preparations for efficient citizenship. He wants, too, the best knowledge—useful and technical—because without it he knows he cannot have the right kind of citizens. Prof. H. N. Dickson contributes an essay on higher education and commerce, and points out that those universities and colleges which are able to provide instruction of the higher kind in commercial subjects are steadily increasing in number. An address delivered by Prof. A. L. Bowley last May on progress and leisure is also included.

In reply to a question asked in the House of Commons, Mr. Lloyd George has informed Mr. Duncan Miller that he is not prepared to propose any additional grants to the Scottish universities during the current financial year beyond the sum of 21,000*l.* included in the Supplementary Estimate issued on July 13, but as regards the future he has expressed willingness to sanction, subject to certain conditions, a further addition to the existing grants, provided that suitable schemes of expenditure can be submitted by the authorities of the several institutions concerned. For the current financial year the total grants in aid to Scottish universities and their allocation will be:—

	Grant under Universities (Scotland) Act, 1899	Grant under Education and Local Taxation Account (Scotland) Act, 1892*	Grant from Votes, Class 4, Sub-head I.	Supplementary Estimate	Total
St. Andrews ... ..	6,300	4,500	—	4,000	14,800
Dundee University College ... ..	—	—	1,000	—	1,000
Glasgow ... ..	12,180	8,700	—	6,250	27,130
Aberdeen ... ..	8,400	6,000	—	4,500	18,900
Edinburgh ... ..	15,120	10,800	—	6,250	32,170
	£42,000	£30,000	£1,000	£21,000	£94,000

\* Payable from the Local Taxation (Scotland) Account.  
† Includes £1,000 for Dundee University College.

FOLLOWING an order of the House of Commons, the Board of Education has issued a return by each county council in England and Wales, except London, of the rates levied for elementary education, and of the rate levied for higher education. So far as higher education is concerned, it is interesting to notice that Glamorganshire is most highly rated for this purpose, the rate being 3*d.* in the pound, and bringing in 43,030*l.* Eleven counties levy a rate of 2*d.* or more, but less than 3*d.* They are, in order:—

	Rate <i>d.</i>	Amount raised <i>£</i>
Yorks: West Riding ... ..	2·97	92,948
Cardigan ... ..	2·88	2,647
Monmouth ... ..	2·73	13,074
Denbigh ... ..	2·46	6,096
Merioneth ... ..	2·31	2,049
Herts ... ..	2·13	14,853
Cheshire ... ..	2·12	30,746
Westmorland ... ..	2·10	3,771
Flint ... ..	2·10	3,636
Pembroke ... ..	2·10	2,813
Salop ... ..	2·00	11,131

A number of counties levy a smaller rate than a half-penny in the pound; these are Devon, Dorset, Hereford, Lincolnshire (three divisions), Notts, East Suffolk, West Suffolk, East Sussex, and the North Riding of Yorkshire. The Holland division of Lincolnshire raises nothing for higher education; the Kesteven division raises 10*l.* only, Hereford 35*l.*, East Suffolk 58*l.*, and Dorset 100*l.* Two counties only raise more than 50,000*l.*, namely, the West Riding, 92,948*l.*, and Lancashire, 65,082*l.*

A SCHOOL of aviation is to be established near London in memory of the late Mr. C. S. Rolls. A sub-committee of the Aërial League has had the scheme under considera-

tion, and its cost for the first year is likely to be 2500*l.* The primary aim of the school will be to provide training in aeroplane manufacture and flight, and to obtain a class of men grounded in the subject from beginning to end, including such laboratory and theoretical work as funds and the gifts of apparatus may permit. The laboratory will be open for the use of students from technical institutions already providing elementary classes in the theory of flight, and also for public demonstrations in order to spread an interest in aeronautical science. Men who have undergone courses of training in engineering schools, and competent engineers and mechanics, will be eligible as students. The practical work of students will be directed to securing machines offering greater stability and trustworthiness, lower power and fuel consumption, diminished capital cost and expense of maintenance, and a higher factor of safety than the apparatus now used. In order that an early start may be made, two machines are to be bought at once, and the students will build all further machines, and also those of selected inventors whose ideas are judged to be worthy of construction and practical trial. The funds will be administered by an independent committee of management, including practical men of science. Mr. Patrick Y. Alexander has offered to equip the proposed laboratory with the necessary practical apparatus. The new institution will probably be called the Rolls Memorial School.

SOCIETIES AND ACADEMIES.

PARIS.

**Academy of Sciences, July 18.**—M. Émile Picard in the chair.—P. Villard and H. Abraham: The existence of two explosive potentials; a reply to a recent note of M. Amaduzzi. The authors state that their original intention was to bring forward a theory of the silent and continuous discharge, characterised by luminescence at the anode, based in accordance with the modern hypotheses as to the passage of electricity in gases.—L. Maquenne and E. Demoussy: The toxic qualities of certain salts towards green leaves. The salts of ammonium are shown to be specially dangerous in this respect, while calcium chloride and sea salt have very little effect.—A. Laveran and A. Pettit: The forms of endogenous multiplication of *Haemogregarina sebai*. Observation in this organism shows for a given species a great variety in the multiplication cysts, both in dimensions and number of merozoites, such that it is necessary to beware of assuming the existence of different species too readily.—Joannes Chatin: The variations of structure of the sclerotic among vertebrates.—Ch. Platrier: A problem of rational mechanics and its application to the theory of propulsive helices.—Ernest Esclangon: The passage of the earth through the tail of Halley's comet.—M. Schuilhof: Some remarks on the inequalities of the longitude of the moon.—Jules Drach: The logical problem of the integration of differential equations.—Serge Bernstein: The equations of the calculus of variations.—Sigismond Janiszewski: The geometry of cantor lines.—L. Zoratti: The notion of a line.—Jean Chazy: A differential equation of the third order which has its critical points fixed.—René Garnier: A class of differential equations the general integrals of which have their critical points fixed.—Witold Jarkowski: Some theorems on "sustainers."—A. Tanakadate: A photographic study of the current of air produced by the movement of a helix.—E. Mathias and H. Kamerlingh Onnes: The rectilinear diameter of oxygen. Experiments in the case of oxygen give an affirmative answer to the question whether the deformation of the surface when the critical temperature is lowered leaves intact its rectilinear form.—A. Perot and J. Bosler: The theory of the luminescence of the mercury arc *in vacuo*.—A. Tjian: The action of ultra-violet rays on gelatine. These rays destroy jellies, causing their liquefaction or solution, thus forming a contrast to the action of the same rays in coagulating albumen.—G. A. Hemsalech: The relative periods of calcium rays in the spark of self-induction. Experiments of this character provide useful indications in the analysis of bodies containing unknown impurities.—

H. **Buisson** and Ch. **Fabry**: The electric arc in an atmosphere of feeble pressure.—M. **Rouch**: Observations of atmospheric electricity made on Petermann Island during the stay of the Charcot expedition.—William **Duane**: A photographic method of registering  $\alpha$  particles.—M. **Barre**: Sulphate of thorium. The author finds that sulphate of thorium in aqueous solution shows a specific resistance and a freezing point entirely in agreement with the laws of Bouty and Raoult. Measurements also of conductivity and freezing point of solutions containing 1 per cent. of potassium sulphate show the existence of a double salt.—F. **Bodroux**: The action of some ether salts of monobasic fatty acids on the mono-sodium derivative of benzyl cyanide.—Marcel **Guichard**: The absorption of iodine by solid bodies. The fixation of iodine by the surface of a solid is a specific property, and the author gives a list of a number of substances showing this behaviour.—M. **Gard**: Binary hybrids of the first generation in the genus *Cistus* and Mendelian characters.—B. **Sauton**: Influence of iron on the formation of the spores of *Aspergillus niger*.—Pierre **Marty**: New observations on the fossil flora of the Cantal.—Eugène **Collin**: A determination of the nature of the wick of a Punic lamp. The author believes the fibres to have been undoubtedly of flax.—Rémy **Perrier** and Henri **Fischer**: Some particular points in the anatomy of molluscs of the genus *Acera*.—M.M. **Jammes** and **Martin**: The rôle of the chitin in the development of nematode parasites.—Henry **Penau**: The cytology of *Endomyces albicans* (P. Vuillemin).—Amédée **Deicourt** and Émile **Guyénot**: The possibility of studying certain Diptera in a definite medium.—Charles **Nicolle** and E. **Conseil**: Experimental reproduction of exanthematic typhus by direct inoculation with human virus.—M. **Lucet**: The presence of Spirochetæ in a case of hæmorrhagic gastro-enteritis in a dog.

#### CAPE TOWN.

Royal Society of South Africa, June 15.—Mr. S. S. Hough, F.R.S., president, in the chair.—Dr. A. **Theiler**: Note on *Anaplasma marginale*, a new genus and species of the Protozoa. This *Anaplasma* is transmitted by ticks, and it is a noteworthy fact that the incubation time by tick transmission is much longer than that after inoculation of the animal with blood; in the experiments carried out it varied from fifty-five to seventy-five days. Blood of an immune animal is infective; such an animal forms the reservoir of the virus. This is a peculiarity of the piroplasma diseases, to which group *Anaplasmasis* also belongs. Dr. Theiler's opinion is that *Anaplasmasis* is probably the disease which the farmer has hitherto called "gall sickness." Up to the present four different parasites are, in South Africa, found in the blood of immune cattle, and they can all be transmitted by the inoculation of the blood and by ticks.—Dr. R. **Gonder**: The development of *Piroplasma parvum* (Protozoa) in the various organs of cattle. The author suggests an explanation of the fact that the blood of animals suffering from East Coast fever injected into healthy animals does not transmit the disease. It is possible, he thinks, that the blood contains forms which can develop in the tick, and which, when injected, die. Concerning the place of the East Coast fever parasite in protozoology, he thinks the proposition justifiable to separate it from *Piroplasma*, and to substitute a new generic name, "*Theileria*," as suggested by Bettencourt.

#### FORTHCOMING CONGRESSES.

AUGUST 1-6.—International Congress of Entomology. Brussels. Chairman of Local Committee for Great Britain: Dr. G. B. Longstaff, Highlands, Putney Heath, S.W.

AUGUST 1-7.—French Association for the Advancement of Science. Toulouse. President: Prof. Gariel. Address of Secretary: 28 rue Serpente, Paris.

AUGUST.—International Congress of Photography. Brussels. Correspondent for United Kingdom: Mr. Chapman Jones, 11 Eaton Rise, Ealing, W.

AUGUST 2-7.—International Congress on School Hygiene. Paris. General Secretary: Dr. Dufestel, 10 Boulevard Magenta, Paris. Hon. Secretaries for Great Britain: Royal Sanitary Institute, 90 Buckingham Palace Road, S.W.

AUGUST 15-20.—International Zoological Congress. Graz (Austria). President: Prof. Ludwig von Graff. Address for inquiries: Präsidium

dgs VIII. Internationalen Zoologen-Kongresses, Universitätsplatz 2, Graz (Österreich).

AUGUST 13-26.—International Geological Congress. Stockholm. General Secretary: Prof. J. G. Andersson, Stockholm 3.

AUGUST 29 TO SEPTEMBER 6.—International Union for Cooperation in Solar Research. Mount Wilson Solar Observatory. British Member of Executive Committee to whom inquiries should be addressed: Prof. A. Schuster, F.R.S., Victoria Park, Manchester.

AUGUST 31 TO SEPTEMBER 7.—British Association. Sheffield. President: Prof. T. G. Bonney, F.R.S. Address for inquiries: General Secretaries, Burlington House, W.

SEPTEMBER 4-7.—Swiss Society of Natural Sciences. Bâle. Secretary: Dr. H. G. Stehlin, Museum of Natural History, Augustinerstrasse, Bâle.

SEPTEMBER 8-14.—International Congress of Americanists. Mexico City. General Secretary: Sr. Lic. D. Genaro Garcia, Museo Nacional, Mexico, D.F.

SEPTEMBER 13-15.—International Congress of Radiology and Electricity. Brussels. General Secretary: Dr. J. Daniel, 1 rue de la Prévôté, Brussels. Correspondents for United Kingdom: Prof. Rutherford and Dr. W. Makower, University of Manchester, and Dr. W. Deane Butcher, Holyrood, Ealing, W.

SEPTEMBER 18-24.—German Association of Naturalists and Physicians. Königsberg. Secretaries: Prof. Lichtheim and Prof. F. Meyer, Drummstr. 25-29, Königsberg.

SEPTEMBER 27-30.—International Physiological Congress. Vienna. President: Prof. S. Exner. General Secretary for United Kingdom: Prof. E. B. Starling, University College, London, W.C.

OCTOBER 6-12.—Congrès International du Froid. Vienna. Correspondent for United Kingdom: Mr. R. M. Leonard, 3 Oxford Court, Cannon Street, E.C.

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