

The complete destruction often caused by a single tornado makes it extremely unsafe for any local mutual insurance company to insure over a small area only, where the loss occasioned by one tornado may ruin the company. On the whole, general tornado insurance in the "tornado belt," and buildings erected without regard to the possibility of tornado occurrence, seems to be the best policy. The present status of tornado insurance in the United States is an excellent illustration of the mistakes which are made when thoroughly well established scientific facts, which are easily accessible to the public, are disregarded.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE Education Bill was read for a third time in the House of Commons on July 16, and will be considered at once in the House of Lords. It is expected that the Bill will be passed into law before the Parliamentary recess.

By the will of the late Lord Rhondda the governing body of Gonville and Caius College, Cambridge, will receive out of the residue of his estate the sum of 20,000*l.*, to be applied at its discretion for the benefit of the college, but preferably in the establishment and maintenance of six to ten scholarships tenable at the college for mathematics, natural science, or moral science (including economics), preference being given, *ceteris paribus*, in the awarding of such scholarships to residents or sons of residents in Wales or Monmouthshire.

THE Industrial Reconstruction Council has arranged a series of lectures to be given at the Saddlers' Hall, Cheapside, October to December next. The lectures will be as follows:—"Commerce and Industry after the War," Sir Albert Stanley (President of the Board of Trade); "Principles of Reconstruction," Dr. Christopher Addison (Minister of Reconstruction); "Functions of the Government in Relation to Industry," Mr. W. L. Hichens (managing director, Cammell, Laird, and Co.); "International Trade," Sir Arthur Steel-Maitland (Department of Overseas Trade); "Labour and Industrial Development," Mr. Ernest J. P. Benn (chairman, Industrial Reconstruction Council); and "Science and Industry," Sir William S. McCormick (Department of Industrial and Scientific Research).

THE report of the librarian of the Congress of the United States for 1917 gives a full account of the progress of this great library. A grant of no less than 676,714 dollars was provided for the institution by Congress. The library now contains more than 2½ million volumes, besides manuscripts, maps and charts, music, and prints. Among other valuable acquisitions it contains the largest, most readily accessible, best catalogued, and most used collection in America of Chinese books. Large additions have been made to the valuable library of music. Great stores of materials for the study of social history have been brought together, including both ancient and modern political documents, such as those of Mr. Bancroft Davis, Israel Washburn, and others. The collections are splendidly housed, and the work of arrangement and cataloguing is in active progress.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, June 19.—Mr. G. W. Lamplugh, president, in the chair.—Sir Douglas Mawson: Some features of the Antarctic ice-cap. The ice-mantle of the south formerly involved the sub-Antarctic Islands, Patagonia, southern New Zealand, and the higher

mountains of Tasmania and of the neighbouring portions of Australia, but it retreated to its present confines—a circumpolar continent—at a time apparently concurrent with the disappearance of the extensive Pleistocene ice-sheets of the northern hemisphere. The existence of a great land mass situated on the face of the globe just where the sun's rays fall most obliquely has the effect of intensifying the polar conditions. This result is achieved by reason of the elimination of the ameliorating influence of the ocean and as a result of the acceleration of the circulation of the moist atmosphere from the surrounding sea to the land, owing to the wide difference in temperature pertaining over the one and the other. Thus the presence of extensive land at the Pole, in contradistinction to ocean, results, under present cosmical conditions, in increased refrigeration, and consequently in greater extension of the polar ice-cap. This, in turn, reflects on the average temperature of other regions of the globe, for an ice surface absorbs but a relatively small proportion of the sun's radiant heat. The existence of the Antarctic continent must therefore have some bearing on the climate of the northern hemisphere, and be reckoned with as a factor contributing to the refrigeration thereof. The shelf-ice formations, including the Ross Barrier and the Shackleton Shelf, were specially referred to; mention was made of their growth and decline, of a method of determining their depth below water, and of the probability of specialised life existing beneath such formations.

Physical Society, June 28.—Prof. C. H. Lees, president, in the chair.—I. Williams: A new method of measuring alternating currents and electric oscillations. The method consists of the application of the Crookes and Osborne Reynolds radiometers to the measurement of the R.M.S. values of electric currents. Two types of apparatus are described. In the first of these the heat generated by the passage of the current through a microhm resistance causes the deflection of a light mica vane attached to the extremity of a suspended beam. In the second type the deflection of a fine fibre is employed. Tables and curves are given connecting the indications of the instruments with the current and with the degree of evacuation.—Prof. E. H. Barton and Miss H. M. Browning: Demonstration of coupled vibrations. The apparatus shown consisted of a pair of pendulums, each of which was suspended from the mid-point of a sagging string, the direction of which was transverse to the direction of oscillation of the pendulums. The two sagging strings were connected by a light wooden rod at the points from which the bobs were suspended. Each bob consisted of a metal funnel, from the apex of which a fine stream of sand fell during an experiment. A horizontal board could be moved slowly on rails just below the oscillating bobs, and the fine sand falling on this gave curves showing their motion. When one bob is set in oscillation, the other being initially at rest, the latter, as is well known, starts to vibrate with gradually increasing amplitude until the first bob has been brought to a standstill, when the process is reversed. From an examination of the equations of motion it is found that the amount of sag in the transverse strings governs the degree of "coupling" of the oscillators, and by varying this, and also the relative mass and periods of the pendulums, curves can be obtained illustrating all the phenomena of coupled electrical oscillations. By stopping one of the bobs when it has just been reduced to rest, thereby preventing the energy from being re-absorbed by it, the conditions of the quenched spark can be imitated.

PARIS.

Academy of Sciences, July 1.—M. Léon Guignard in the chair.—G. Bigourdan: The observatory of Godin, Fouchy, and de Bouguer: its co-ordinates.—M. Hamy: The determination of radial velocities with the objective prism.—G. Charpy: The influence of forging and rolling (*corroyage*) on the mechanical properties of steel. It is generally accepted that cast-steel ingots must be forged or rolled hot until the final section is reduced to between one-third and one-fourth the original section. This involves a considerable expenditure of fuel and labour, and experiments are given by the author which suggest that this hot working does not really improve the metal; the strength is increased in one direction, but reduced in another.—M. Trabut was elected a correspondant for the section of rural economy in succession to the late M. Yermoloff.—J. Andrade: A family of displacements and a generalisation of the dihedron.—P. Humbert: Two polynomes associated with the polynomes of Legendre.—C. Raveau: Thermodynamics based entirely on Carnot's principle. A second absolute temperature.—Ed. Chauvenet and Mlle. H. Gueylard: The combinations of neutral zirconyl sulphate with some alkaline sulphates. From thermochemical measurements the existence is indicated of the double salts $[(ZrO)SO_4]_3 \cdot 2Na_2SO_4$ and $[(ZrO)SO_4]_3 \cdot 2(NH_4)_2SO_4$, together with the two corresponding containing $7H_2O$.—A. Valeur: The presence of a non-volatile alkaloid in the broom (*Sarothamnus scoparius*). This new alkaloid was isolated from the last mother liquors obtained in the successive crystallisations of commercial sparteine sulphate, and the name sarothamnine is suggested. Its formula is given provisionally as $C_{15}H_{24}N_2$, isomeric with the base spartyrine resulting from the gentle oxidation of sparteine.—Mlle. Yvonne Dehorne and L. Lutaud: Tectonic observations on the neighbourhood of Martigues (Bouches-du-Rhône).—F. X. Skupiński: Sexuality in the Myxomycetes.—R. Souèges: The embryogeny of the Liliaceæ. Development of the embryo in *Anthericum ramosum*.—M. Folley: Technique of blood transfusion.—P. L. du Noüy: A general equation for the law of normal cicatrisation in surface wounds.

CAPE TOWN.

Royal Society of South Africa, May 15.—Dr. J. D. F. Gilchrist, president, in the chair.—Ethel M. Doidge: South African Perisporiaceæ. III. Notes on four species of *Meliola* hitherto unrecorded from South Africa. The fungi considered in the paper are all from Natal and the eastern part of the Cape Province, and have been identified from recent collections.—J. D. F. Gilchrist: Reproduction of fishes in Table Bay. The eggs and young of twenty-one species of fishes were procured in about sixty tow-nettings made at more or less regular intervals throughout the year. Fourteen of these were referred to known species. The eggs procured and larvæ hatched from them are described and figured. The eggs of the sardine (*Sardina sagax*) and of the anchovy (*Engraulis capensis*) indicate that these fish are present in abundance, though as yet not utilised for economic purposes.—W. A. Jolly: Note on the electrogram of the medulla oblongata.

BOOKS RECEIVED.

Chemical Combination among Metals. By Prof. M. Giua and Dr. C. Giua-Lollini. Translated by G. Wooding Robinson. Pp. xiv+341. (London: J. and A. Churchill.) 21s. net.

Papers for the Present. Second series, No. 4. The Re-education of the Adult. The Neurasthenic in War

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and Peace. The Convalescent as Artist-Craftsman. Pp. iv+19. (London: Headley Bros., Ltd.) 6d.

Telegraphy, Aeronautics, and War. By C. Bright. Pp. xvii+407. (London: Constable and Co., Ltd.) 16s. net.

Life and Letters of Sir Joseph Dalton Hooker, O.M., G.C.S.I. Based on materials collected and arranged by Lady Hooker. By L. Huxley. 2 vols. Vol. i., pp. x+546. Vol. ii., pp. vi+569. (London: J. Murray.) 36s. net.

The Recovery and Re-manufacture of Waste Paper. A Practical Treatise. Printed on paper made entirely from regenerated waste paper. By J. Strachan. Pp. vi+158. (Aberdeen: The Albany Press.) 12s. 6d. net.

Report on the Danish Oceanographical Expeditions, 1908-10, to the Mediterranean and Adjacent Seas. Published under the superintendence of Dr. J. Schmidt. Vol. ii. Biology. No. 4. Pp. 1-154+1-28+1-40+1-15. No. 5. Pp. 1-154+1-70+1-18+1-20. (Copenhagen: A. F. Høst and Søn.)

The Zinc Industry. By E. A. Smith. (Monographs on Industrial Chemistry.) Pp. viii+223. (London: Longmans, Green, and Co.) 10s. 6d. net.

The Commonwealth Book of Cookery. By M. V. Palmer. Pp. 124. (London: Longmans, Green, and Co.) 2s. 6d. net.

The Modern Treatment of Mental and Nervous Disorders. A lecture delivered at the University of Manchester on March 25, 1918. By Dr. B. Hart. Pp. 28. (Manchester: At the University Press.) 1s. net.

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