

tance, no reason is apparent why these hills should not presently share in the movement of the material which lies upon their flanks. The apprehension is all the more natural because great chunks of the massive rock have broken from the parent masses adjacent to the sliding ground. When, however, we examine the materials closely we find a great difference in character between the central, and highest, part of these hills and the lower slopes which slide. The committee reports that the hills consist of intrusive bodies of basalt or of masses of hard Obispo tuff, and that, so far as the exposures show, they do not rest upon the soft beds, but extend far down below Canal bottom. The committee is therefore of opinion that although rock may break off from them, they will not collapse.

In this connection it is important to note the observation in the report that there has been no upheaval of the Canal bottom between Gold Hill on the east, and Contractor's Hill, nearly opposite to it, on the west, side of the Canal, which is the deepest part of the cut. This shows that the hills are not pressing on the bottom.

Thus the findings of the committee, and the evidence in their report, favour the opinion that the establishment of a permanent waterway free from interruption is only a question of time; of time to be reckoned, not in months, indeed, on one hand, but certainly not in centuries on the other. It thinks that "some sliding ground will continue to enter the Canal for several years to come," and it recommends that certain steps be taken to lessen its amount. These recommendations have to do with the control of the rain-water, which in this region of great precipitation adds so much to the weight of porous, stratified rocks, and so greatly diminishes their cohesion. The committee proposes, therefore, that the growth of vegetation should be promoted, that cracks should be filled up as soon as formed, that surface and tile drainage should be undertaken in threatened areas, and that drains should be established on the moving ground of the three great slides. VAUGHAN CORNISH.

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

It is announced in the issue of *Science* for August 18 that Lafayette College is the residuary legatee of the late Mr. A. N. Seip, of Washington, D.C. It is said that the college will ultimately receive not less than 50,000*l.*

The Elgar Scholarship of the Institution of Naval Architects, of the annual value of 100*l.*, and, subject to certain regulations, tenable for three years, has been awarded to Mr. R. J. Shepherd, of his Majesty's Dockyard, Devonport.

It is stated in a recent issue of *Science* that the vocational-educational Bill, providing for Federal co-operation with the various States in promoting agricultural and industrial education in the United States, makes an annual appropriation beginning at 100,000*l.* and increasing each year by 50,000*l.* until 600,000*l.* is reached, to be apportioned to the States in proportion to their rural population.

THE calendar for 1916-17 of the Edinburgh and East of Scotland College of Agriculture is now available. The college was founded to provide for agricultural education and research in the central and south-eastern counties of Scotland. It receives annual grants from the Government through the Board of Agriculture for Scotland. Its classes are arranged in conjunction with the science faculty of Edinburgh University, and the courses for the diploma of the college and the B.Sc. degree of the University are

concurrent. The calendar contains full details of the courses of instruction available in the departments of agriculture, horticulture, and forestry. The aim of the college is to supply such training in agriculture and the sciences underlying it as is nowadays indispensable to all who intend to gain their living from the land as owners, or tenants, or agents. Copies of the calendar may be obtained from the secretary of the college, 13 George Square, Edinburgh.

A CONFERENCE representative of the Classical, English, Geographical, Historical, and Modern Language Associations has drawn up the following resolutions, which have received the approval of the councils of the five associations named:—That in the opinion of the conference: (1) It is essential that any reorganisation of our educational system should make adequate provision for both humanistic and scientific studies. (2) Premature specialisation on any one particular group of studies, whether humanistic or scientific, to the exclusion of all others, is a serious danger, not only to education generally, but to the studies concerned. (3) Humanistic education implies the adequate study of language and literature, geography and history, which in each case should, at the appropriate stages of education, go beyond the pupils' own language and country. (4) The representatives of humanistic studies would welcome from the representatives of the mathematical and natural sciences a statement with regard to those studies similar to that contained in (3). (5) In all reform of education it must never be forgotten that the first object is the training of human beings in mind and character, as citizens of a free country, and that any technical preparation of boys and girls for a particular profession, occupation, or work must be consistent with this principle. (6) Subject to the above principles the associations concerned would welcome a comprehensive revision of national education from the point of view of present needs. It is stated that "the resolutions are published in the hope that in any coming reconstructions of our educational system this attempt to restate the 'humanistic' position will mitigate the dangers incident to a violent breach of tradition and an excessive reaction against the past predominance of certain types of study. But it will be obvious that they are drawn up in no spirit of hostility or indifference to either scientific or technical studies, and their framers are anxious to co-operate in securing for these, as well as for the studies with which they are themselves more particularly interested, their due place in a national system of education." Co-operation and suggestions are invited; any communication may be addressed to the chairman of the Conference of the Five Associations, Prof. T. F. Tout, Oak Drive, Fallowfield, Manchester.

#### SOCIETIES AND ACADEMIES.

##### PARIS.

**Academy of Sciences**, August 21.—M. Paul Appell in the chair.—A. Lacroix: Some volcanic rocks of the French possessions in the Indian Ocean and the Pacific.—Paul Appell: The developments of the square root of a polynomial in continued fractions.—W. H. Young: The convergence of Fourier's series.—M. Petrovitch: Theorem of the mean relating to the integrals of an important partial differential equation.—G. Giraud: Quadratic forms and hyperabelian functions.—A. Liljeström: A geometrical theorem useful for the study of the direct inversion of Abelian integrals.—R. Garnier: A new method for resolving Riemann's problem.—R. Birkeland: Developments of the movement of a fluid parallel to a fixed plane.—V. Kostitzin: The periodicity of the solar activity and the influence

of the planets.—H. **Bordier**: The action of light on dilute aqueous solutions of iodine and iodide of starch. Dilute solutions of these two substances, stable in the dark, are bleached by the action of light. The hypothesis put forward to explain this fact is based on the supposition that both iodine and iodide of starch do not form true solutions but colloidal solutions.—A. **Blanchetière**: The relations between the chemical constitution of certain derivatives of amino-acids and the mode of attack of these substances by bacteria.—Ch. **Dhéré** and G. **Vegezzi**: The influence exercised by the degree of reduction of the hæmochromogens on their spectra.

## NEW SOUTH WALES.

**Linnean Society**, June 28.—Mr. C. Hedley, vice-president, in the chair.—R. J. **Tillyard**: Studies in Australian Neuroptera. No. iii., The wing-venation of the Chrysopidæ. The paper shows the method adopted in extracting the pupa of Chrysopa from its cocoon, and preparing the wing-sheaths for photomicrography. The result of a study of the pupal wing tracheation demonstrates that the Chrysopidæ are the most highly specialised of all Neuroptera. In the hindwing the point usually taken as the origin of Rs is shown to be a false origin, the true basal portion being fused with M. In both wings the veins usually named the media and cubitus are shown to be highly complex formations developed from consecutive, short portions of the true media, true cubitus, and the more proximal branches of the radial sector. These latter are termed the Banksian sectors, since their part in the above formations is similar to that of the branches forming the Banksian line in Myrmeleontidæ. The two composite veins themselves are named the pseudomedia (L') and pseudocubitus (Cu') respectively. No corresponding veins are known anywhere else in the class Insecta. The true media is shown to be branched in both wings, Banks's "divisory veinlet" in the forewing being formed by divergence and distal re-fusion between M<sub>2</sub> and M<sub>1</sub>. The paper concludes with a phylogenetic discussion in which the venation of the Apochrysidæ is compared with that of the Chrysopidæ, and the descent of these families from an original Osmylid-like stock, *via* forms like the Jurassic Mesochrysoptera, is indicated.—Dr. A. J. **Turner**: A third contribution to a knowledge of the Lepidopterous fauna of Ebor Scrub, N.S.W. Four additional visits to the Scrub, in January, 1916, resulted in 128 captures, representing forty species, twenty-two of which have been previously recorded. Six of the remaining eighteen are known to occur elsewhere, and twelve are now described as new, as well as an interesting geometrid obtained in 1914, but overlooked. The number of recognised species amounts to sixty-nine, of which only twenty-four are known from other localities.—M. **Aurousseau**: Petrological notes. No. ii., The relations between some West Australian gneissic and granitic rocks. The observations recorded are grouped under two heads—"The Geology of the Roelands District," and "The Crystalline Rocks of Albany."

## BOOKS RECEIVED.

Masonry Dam Design. By Dr. C. E. Morrison and O. L. Brodie. Second edition. Pp. ix+276. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 10s. 6d. net.

Principles of Oil and Gas Production. By Prof. R. H. Johnson and S. G. Huntley. Pp. xv+371. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 16s. net.

A Method for the Identification of Pure Organic Compounds, etc. By Dr. S. P. Mulliken. Vol. ii.

Pp. ix+327. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 21s. net.

Through South Westland. By A. M. Moreland. Second edition. Pp. xviii+219. (London: Whitcombe and Tombs, Ltd.)

Growth in Length: Embryological Essays. By R. Assheton. Pp. xi+104. (Cambridge: At the University Press.) 2s. 6d. net.

Agricultural Geology. By R. H. Rastall. Pp. ix+331. (Cambridge: At the University Press.) 10s. 6d. net.

The Algebraic Theory of Modular Systems. By F. S. Macaulay. Pp. xiv+112. (Cambridge: At the University Press.) 4s. 6d. net.

Analytical Chemistry. Vol. i., Qualitative Analysis. By Prof. F. P. Treadwell. Translated by W. T. Hall. Pp. xiii+538. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 12s. 6d. net.

Love and Cruelty. By W. H. Cock. Pp. v+148. (London: R. Scott.) 2s. net.

Transactions of the Royal Society of Edinburgh. Vol. I, part iii. Session 1914-15. (Edinburgh: R. Grant and Son.) 27s.

The Source of Life and Thought. By J. C. Scholey. Pp. vi+26. (London: Kegan Paul and Co., Ltd.) 1s. net.

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