

200,000*l.*, including 30,000*l.* to the Boston Medical Library and 10,000*l.* to Harvard University. It is also announced that the increased appropriations for Miami University by the Legislature of the State of Ohio at its last session have rendered it possible to enlarge the science hall, given by Senator Brice, to about three times its present capacity. The new Brice Hall will be occupied by the departments of chemistry, physics, and biology of the Liberal Arts College, and by the natural history department of the State Normal School. The University of Southern California, at Los Angeles, is also to be extended by a new building to cost 20,000*l.* It will be devoted to the science departments.

An attempt is being made to establish an association of teachers of science, art, and technology who are engaged in teaching at London institutions. It is hoped that the new association may become ultimately a national body. It has been agreed at meetings already held that the principal aims and objects of the association should be the general advancement of technical education; the interchange of ideas regarding methods of teaching technical subjects; the promotion and safeguarding of the professional interests of the members of the association in such matters as tenure, pensions, and registration; to lay the views of the association before educational authorities and before the public; and to enable the members to cooperate as a body with other scientific and educational associations. Arrangements have been made for a general meeting to be held on October 22 at the Birkbeck College, Chancery Lane, at 3.30. All London teachers of science, art, and technology, other than those employed in secondary schools, are invited to be present. Fuller particulars may be obtained from Mr. J. Wilson, head of the chemical department, Battersea Polytechnic, who is acting as temporary honorary secretary.

THE annual report of the Glasgow and West of Scotland Technical College, recently adopted by the governors of the institution, shows that the first section of the new buildings has proceeded satisfactorily. The main structure is nearly completed, and the internal equipment is advanced sufficiently to permit of the occupation of a few rooms during the present session. It does not seem possible to proceed immediately with the erection of the second section. The subscriptions to the building fund amount to 186,525*l.*; the cost of the first section will be 140,000*l.*, and to this must be added 44,654*l.*, the cost of the site. The second section will cost at least 60,000*l.*, and the governors appeal for further contributions to enable them to erect the whole of the buildings. It is estimated that the equipment of the first section will mean an expenditure of 40,000*l.* Conditional upon a new fund of this amount being raised for the purpose, the Carnegie University Trust promised a grant of 5000*l.* A second grant of 5000*l.* from the Education Department and other subscriptions have been placed to the credit of the fund, which now stands at 18,135*l.* The governors hope that they will soon be placed in a position to claim the grant conditionally promised by the trust. It is worthy of note that the total number of individual students reaches 5333, of whom 489 are adult day students, 4212 evening students, and 632 pupils of Allan Glen's School.

An article on the selection of Rhodes scholars in connection with the Rhodes Scholarship Bequest was contributed to the *Times* of October 13 by Dr. G. R. Parkin. It appears that during the present month about seventy-five men, the first large group of scholars selected, enter on residence at Oxford University. Canada, Australia, South Africa, New Zealand, Newfoundland, Bermuda, and Jamaica, within the Empire, and, outside the Empire, Germany and the United States, with the exception of a few States where no suitable candidate was found, will have their representatives. In 1905 a larger number will probably be selected; in 1906 scholars will be chosen only from colonies of the Empire and from Germany, to which annual scholarships are assigned, whereas each of the United States has only two scholarships in three years. Thus in 1906 the full number—about 190 in all—provided for under the bequest will be in residence. It is interesting to note that the men sent as scholars are selected, where practicable, from colleges or universities rather than from secondary schools. It has

been decided that throughout the United States generally only those candidates shall be eligible who have done at least two years' work at a recognised degree-granting university or college. In cases where the committee of any State expressly asks leave to appoint from secondary schools this leave is granted. The limits of eligible age were placed between nineteen and twenty-five. The public interest taken in the organisation of the scheme of award has been most striking. It will probably take some time to complete a system of selection which is beyond criticism, but a fair beginning seems to have been made in giving practical effect to the conception of the testator.

## SOCIETIES AND ACADEMIES.

LONDON.

**Entomological Society**, October 5.—Prof. E. B. Poulton, F.R.S., president, in the chair.—Mr. G. H. Verrall exhibited specimens of (a) *Callicera yerburyi*, Verr., a Syrphid new to science, taken this year in Scotland by Colonel J. W. Yerbury, and (b) *C. aenea*, F., the other British species of the genus, together with three European species of *Callicera*, *C. macquatii*, *C. spinolae*, and *C. porrii*.—Mr. H. St. J. Donisthorpe exhibited *Tetropium fuscum*, L. (♂ and ♀), and *Abdera 4-fasciata*, Curt., taken by him at Market Bosworth, Leicestershire.—The Rev. F. D. Morice exhibited cells constructed by two wasps, *Polistes gallicus* and *Eumenes coarctatus*, found by him in the Balearic Islands.—Mr. A. J. Chitty exhibited specimens of the earwig *Apterygida media (albipennis)*, found originally by Westwood, and hitherto recorded only from Norfolk. He had taken the species at Huntingfield and Charing, Kent, this year.—Mr. W. J. Lucas exhibited a living specimen of *Labidura riparia*, ♂, from the shore near Christchurch, Hants, kept alive for more than a month, and fed upon fruit, meat, &c.—Prof. Hudson Beare exhibited on behalf of Mr. C. J. C. Poole specimens of *Aulonium sulcatum*, Oliv., a beetle new to the British fauna.—Mr. W. Dannatt exhibited a specimen of *Papilio homerus* from the Blue Mountains, Jamaica, and three new butterflies, *Chlorippe godmani*, from Venezuela, *Delias hempeli*, from Gilolo, and *Monethe johnstoni*, from British Guiana.—Dr. T. A. Chapman exhibited for Mr. Hugh Main a teratological specimen of *Arctia caja*, bred this year. Immediately below the costa the left hind wing divided into three layers, each of which was apparently a normal wing so far as form, colour, and markings went, but which, when the insect was alive, were so closely applied to each other as to look like one normal wing, until they were separated.—Mr. F. Merrifield exhibited pod-like galls found on a terebinthine shrub in the limestone region of Auvergne, apparently those of *Pemphigus cornicularius*.—Mr. Norman Joy exhibited the black variety of *Bledius taurus*, Germ., taken at Wells, Norfolk, August, 1904; *Bledius femoralis*, Gyll, from Wokingham, Berks, a species that has not been taken in the British Isles for more than fifty years; *Polydrusus sericens*, from Hampshire; *Neuraphes carinatus*, Mul., from Bradfield, near Reading; a small form of *Dyschirius politus*, Dej., taken at Bridlington and at Wokingham; and a *Rhizotrogus* (? species), taken in some numbers near Streatley, Berks.—Dr. F. A. Dixey exhibited some preparations of the scent of male Pierine butterflies, and read a note descriptive of the same.—Mr. H. J. Turner exhibited living examples of the larva of *Phorodesma smaragdaria* from the Essex marshes. He also contributed notes on the life-histories, and living larvae and cases, of several Coleophorids, among them *C. vibicella*, a species which, although generally distributed on the Continent, has only been recorded from a few English localities.—Mr. G. J. Arrow read a paper on sound production in the lamellicorn beetles.—Prof. C. Aurivillius communicated a paper on new species of African Striphnapterygidæ, Notodontidæ, and Chrysapalonidæ in the British Museum.—Mr. A. H. Swinton communicated a paper on the droughts and weather, and insect increase and migration.—Mr. E. Ernest Green communicated a paper on some new mosquitoes from Ceylon, by Frederick V. Theobald.

## MANCHESTER.

**Literary and Philosophical Society, October 4.**—Prof. W. Boyd Dawkins, F.R.S., president, in the chair.—Mr. Charles Bailey exhibited some specimens of *Sisymbrium strictissimum*, L., which had been sent him by Mr. James E. McDonald, of Stockport, as occurring at Heaton Mersey, where it had been established for the last fifteen years. He remarked that this genus, apart from the aboriginal species, was already represented in Lancashire and Cheshire by two aliens, *S. polyceratium* at Birkenhead, and *S. pannonicum* at St. Anne's-on-the-Sea and elsewhere. *S. strictissimum* is, therefore, a third colonist of this genus which has obtained a permanent footing in our flora.—Prof. W. Boyd Dawkins, F.R.S., directed attention to a new cause of folding of the rock other than that which has been long recognised by geologists as ultimately due to the folding of the outer layers of the earth as they follow the contracting nucleus. The deep cuts made through valleys to make watertight barriers in the construction of reservoirs revealed the fact that the bottom of the valleys, wherever it was formed of shales and thin sandstones, was more or less folded and contorted. These folds and contortions caused the shales to let the water through with more or less freedom, and he had been called in repeatedly to advise as to how far it was necessary to carry the puddle trenches down below the valley bottom. He found, as a matter of experience, that these folds were superficial, and if the sinking were made to a sufficient depth below the bottom of the valley they disappeared altogether. It was therefore obvious that they were not due to deep-seated movements of compression resulting from the contraction of the earth. They are due to the relaxation of pressure caused by the removal of the rock by denudation from the area of the valley, and are analogous in every particular to "the creep" in coal workings, caused by the excavation of coal, by which the surrounding strata crush down into the area of relaxed pressure and ultimately fill it up. This may be studied in any coal pit where there is a superincumbent pressure, say, of more than 1000 feet. The two following illustrations of folding and faulting by relaxation of pressure are presented by the puddle trench of the Langsett reservoir belonging to the Sheffield Corporation, and by the two reservoirs now under construction on the head waters of the Derwent by the Derwent Water Board. In the first of these the foldings in question at the bottom of the valley in the shale under the first grit are strongly marked at the surface. These folds gradually disappear, and are based upon a hard black unmovable shale offering a good foundation about 60 feet below the bottom of the valley. This is in the valley of the little Don. The thickness of rock removed from the bottom of the valley amounted to no less than something like 8000 feet of Coal-measures and Millstone Grit. In the case of the Derwent, in which the folding is much more marked and is accompanied by faulting, the thickness of rock removed amounted to at least 9700 feet (7200 feet of Coal-measures, 2000 feet of Millstone Grit, and at least 500 feet of Yoredale). In this the movement had not extended beyond a depth of 90 feet. In the case of the Derwent reservoir lower down the river there are two systems of folding and faulting which do not penetrate beyond 60 feet from the surface. At that point a good foundation is found for the puddle trench of the embankment.

## PARIS.

**Academy of Sciences, October 10.**—M. Mascart in the chair.—The discontinuity of the external work of muscles compared with the discontinuity of their internal work from the point of view of the energy expenditure of the contraction: A. Chauveau. The results of two sets of experiments are given graphically.—On Perrot's experiment: Louis Maillard. A preliminary account of some qualitative results is given. In the first set of experiments twelve succeeded out of twenty-one. In a second set, in which greater precautions were taken to ensure the stability of the receiver, and to avoid currents of air and temperature changes, thirty-one out of thirty-three experiments were successful.—Colour photographs obtained by the interference method without using the mercury mirror: E. Rothé. A careful examination of some photographs taken by Lipp-

mann's method led to the conclusion that it ought to be possible, by prolonged exposure, to obtain photographs in colour by the reflection of light on the air-gelatine surface only, and this has been proved experimentally. The method presents the advantages of being applicable in any apparatus without the use of special material.—On the temperatures of transformation of steels: Georges Charpy and Louis Grenel. Three methods were applied to each sample, making use of the electrical resistance, the expansion, and the thermoelectric power. It was found that the thermoelectric and dilatometric methods show no well marked correlation except for the softer steels. On the other hand, the results furnished by the electrical resistance and dilatometric methods agree closely qualitatively and even quantitatively within the limits of experimental error.—Substituted derivatives of phenyldiazoaminobenzene: Léo Vignon and M. Simonet. The preparation and properties of several substitution derivatives of phenyldiazoaminobenzene are described. These substances are easily prepared by the interaction of the substituted diazoanilines with diphenylamine, and possess the general properties of the diazoamines, being usually unstable.—The influence of castration on the physique: Eugène Pittard.—Culture of a trypanosome of the frog: A. Billet.—On some Hæmoflagellæ of marine Teleostea: C. Lebaillly.—New geological observations on underground sheets of water in the Brenner district: Pierre Termier.

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