

given to students to investigate problems on their own account. In the metallurgy department, in addition to the ordinary courses of instruction in general metallurgy, several special courses of an advanced character are provided. The special courses on liquid, gaseous and solid fuel have also been extended, and in addition to a course of lectures, will include laboratory work on fuel analysis, and on technical gas analysis. It is also of interest to note that included amongst the language classes is a course on scientific and technical German.

A LONG resolution embodying the oft-repeated education demands of the Trade Union Congress was adopted unanimously at a meeting of the congress at Newport (Mon.) on September 4. The main points are as follows:—(1) A national system of education under full public control, free from the primary school to the university; (2) The adequate maintenance of school children; (3) Scientific physical education with annual individual medical inspection, and records showing the physical development of each child; (4) that secondary and technical education be an essential part of every child's education, and secured by such a reform and extension of the scholarship system as will place a maintenance scholarship within the reach of every child, and thus make it possible for all children to be full-time day pupils up to the age of sixteen; (5) That the best intellectual and technical training be provided for the teachers of the children, that each educational district shall be required to train the number of pupil teachers demanded by local needs, and to establish training colleges, preferably in connection with universities or university colleges; (6) that the provision of educational buildings and facilities be obligatory upon the local authority, which shall always retain administrative control of the buildings and facilities so provided; (7) that the cost of education be met by grants from the Imperial Exchequer, and by the restoration of misappropriated educational endowments. The congress placed on record its emphatic disapproval of the refusal of Ministers of Education to grant the demand for a Royal Commission to inquire into such endowments; and instructed the Parliamentary Committee once more to press for the appointment of such a Royal Commission, which shall inquire into:—(a) The finances of the universities and of the great public schools; and to issue a report containing a statement of the history and present value of those endowments which were originally intended for the poor; (b) the conditions of scholarships and other aids in universities and public schools; (c) the relations with lower education institutions; (d) the government of universities and public schools, and to bring forward recommendations showing how these institutions may be brought under full public control.

SECONDARY education in New South Wales has now been organised completely, and Mr. Board, the director of education, in announcing at the beginning of July last a series of appointments to the high schools, described the character of the system which has now been inaugurated. We learn, from *The Sydney Morning Herald*, that Mr. Board claims for the New South Wales scheme of secondary education that it assigns a definite time for the studies of a secondary school, making four years the minimum which any student should spend on these studies. Another good point is the certificating system, which connects the secondary school with the primary school on one hand and the university on the other, and also leads definitely to certain well-marked types of career—for example, the technical or the commercial. Attached to the scheme of certificates is the system of examination. The examinations are, in the first place,

school examinations as well as tests of individual attainments. In the second place, the results of the examination will be modified by consideration of the school record of the pupil, and, again, the examination can only follow upon the completion of a specific programme of studies that has occupied a definite period of time, and in the last place the examinations for the certificates are closely associated with the thorough inspection of the schools. A specially constituted board of examiners, representing both the University and the Education Department, will determine the award of all certificates. In a few years there will be a large number of efficient high schools under the control of the Department of Public Instruction, and it is hoped that a leaving and intermediate examination will be carried on somewhat on the lines of that in Scotland. The alternative scheme, which was not adopted, was a system of inspection and examination by the University of Sydney. That is not, however, the true function of a university. Sydney has acted wisely in not undertaking it, though the University may assist, as it has done, to strengthen the State Education Department, and get it to organise secondary education as well as primary and technical.

SOCIETIES AND ACADEMIES.

CALCUTTA.

Asiatic Society of Bengal, August 7.—R. K. Bhide: Two more new species of Gramineæ from Bombay. Two new species of grasses are described, (1) *Chloris quinquesetica*, collected by Mr. G. A. Gammie, and subsequently by the author, from Bassein, and (2) *Sporobolus scabrijolius*, collected by the author from Rannebennur.—Manindra Nath Banerjee: A measure of chemical affinity. The chemical activity of an element bears a simple relation to its density; if its atomic volume be divided by its density, the figure obtained, for which the name "specific extensity" is suggested, gives a measure of the chemical activity of the element. For instance, platinum, which is a very inactive element, is near one end of the scale with a specific extensity of 0.42; hydrogen, a very active one, is near the other end with a specific extensity of 127.25. There are a number of exceptions to the rule, the most obvious being the inactive gases found in the atmosphere.—Rev. H. Hosten: The mouthless Indians of Megasthenes. According to Megasthenes, there lived near the sources of the Ganges a tribe of people, the Astomoi, who had no mouth, but merely orifices through which they breathed. They ate and drank nothing. When they went on a distant journey, they took with them certain roots and flowers or wild apples, on the perfumes of which they subsisted. "Should they inhale very foul air death is inevitable." The tribe is found mentioned in conjunction with the Trispithami (men of three spans long), the Pygmies, and the Scyritæ or Scyratæ (Kirâtas), tribes whose characteristic features are distinctly Mongolian or Himālayan. A number of texts are quoted to prove that the "foul air" against which the Astomoi had to protect themselves represents the phenomenon known as *mal-de-montagne*, or breath-seizure, and that the "wild apples" they used as antidote were onions, dried apples, and apricots, nostrums employed in the Himalayas wherever breath-seizure prevails. The fact that some hill tribes used in their travels fruits of which they inhaled the perfume, lest the "foul air" should kill them, seems then to have led to the idea that they subsisted on nothing else. From this to the belief that they needed no mouth, and, in fact, had none, or "instead of mouths had orifices through which they breathed," the infer-

ence was easy.—Rev. Fr. Nicholas Krick : Account of an expedition among the Abors in 1853. The recent expedition among the Abors gives renewed interest to Fr. Krick's visit to them in 1853. His "Relation d'un voyage au Thibet en 1852 et d'un voyage chez les Abors en 1853" (Paris, 1854) has become scarce; hence we are under obligations to Rev. Fr. A. Gille, S.J., for having translated that part which concerns the Abors. Fr. Krick's remarks on their manners and customs are as applicable to-day as they were nearly sixty years ago.

BOOKS RECEIVED.

Catalogue Général des Antiquités Egyptiennes du Musée du Caire. Nos. 61051-61100: The Royal Mummies. By Prof. G. Elliot Smith. Pp. vii+118+103 plates. (Le Caire: Imprimerie de l'Institut Français.)

Eine physiologische Histologie des Menschen- und Säugetier-Körpers im Wort-Bild und Präparat. By Prof. F. Sigmund. Lief. i., Die Haut. Zweite verbesserte Auflage. Pp. 38. (Stuttgart.) 9.50 marks.

Kreislaufvorgänge in der Erdgeschichte. By Prof. G. Linck. Pp. iii+40. (Jena: G. Fischer.) 1.50 marks.

A Critical Revision of the Genus Eucalyptus. By J. H. Maiden. Vol. ii., part 5. (Sydney: W. A. Gullick.) 2s. 6d.

Elementary Entomology. By E. D. Sanderson and Prof. C. F. Jackson. Pp. vii+372. (London: Ginn and Co.) 8s. 6d.

A Text-Book of Botany. By Profs. E. Strasburger, H. Schenck, L. Jost, and G. Karsten. Fourth English Edition, revised with the tenth German edition, by Dr. W. H. Lang. Pp. xi+767. (London: Macmillan and Co., Ltd.) 18s. net.

A Text-book of Pathology. By Drs. J. G. Adami and J. McCrae. Pp. x+759. (London: Macmillan and Co., Ltd.) 25s. net.

A Hand-list of the Lichens of Great Britain, Ireland, and the Channel Islands. By A. R. Horwood. Pp. 45. (London: Dulau and Co., Ltd.) 1s. net.

The People's Books:—Practical Astronomy with the Unaided Eye. By H. Macpherson, jun. Pp. 94. Theosophy. By Annie Besant. Pp. 94. Rudolf Eucken: a Philosophy of Life. By Dr. A. J. Jones. Pp. 94. Dietetics. By Dr. A. Bryce. Pp. 94. Aristotle. By Dr. A. E. Taylor. Pp. 91. Aviation: its Principles, its Present and Future. By S. F. Walker. Pp. 96. The Evolution of Living Organisms. By E. S. Goodrich. Pp. 108. Embryology: the Beginnings of Life. By Dr. G. Leighton. Pp. 92. (London and Edinburgh: T. C. and E. C. Jack.) 6d. net each.

Dactylography, or the Study of Finger-prints. By H. Faulds. Pp. 127. (Halifax: Milner and Co.) 1s. net.

Fortschritte der naturwissenschaftlichen Forschung. By Prof. E. Abderhalden. Sechster Band. Pp. iii+300. (Berlin and Vienna: Urban and Schwarzenberg.) 1 mark.

The People's Medical Guide. By Dr. J. Grimshaw. Pp. xx+839. (London: J. and A. Churchill.) 8s. 6d. net.

Analytical Geometry. By C. O. Tuckey and W. A. Naylor. Pp. xiv+367. (Cambridge University Press.) 5s. net.

Examples in Applied Electricity. By C. G. Lamb. Pp. iv+61. (Cambridge University Press.) 2s. 6d. net.

The Building of the Alps. By Prof. T. G. Bonney. Pp. 384. (London: T. F. Unwin.) 12s. 6d. net.

Das Gesetz der Wüstenbildung in Gegenwart und

Vorzeit. By Prof. J. Walther. Zweite Auflage. Pp. xv+342. (Leipzig: Quelle and Meyer.) 12 marks.

Chemical Theory and Calculations. By Drs. F. J. Wilson and I. M. Heilbron. Pp. iv+138. (London: Constable and Co., Ltd.) 2s. 6d. net.

The Lushei Kuki Clans. By Lieut.-Col. J. Shakespear. Pp. xxii+250. (London: Macmillan and Co., Ltd.) 10s. net.

From the Black Mountain to Waziristan. Being an account of the Border Countries and the more turbulent of the Tribes controlled by the North-west Frontier Province, and our Military Relations with them in the East. By Col. H. C. Wylly. Pp. xx+505+8 maps. (London: Macmillan and Co., Ltd.) 10s. 6d. net.

A Preparatory Arithmetic. By C. Pendlebury. Pp. xiv+185+xxx. (London: G. Bell and Sons, Ltd.) 1s. 6d.

Man's Place in the Universe. By Dr. A. R. Wallace, O.M. New and cheaper edition. Pp. vi+283. (London: Chapman and Hall, Ltd.) 1s. net.

Nature Photography. By S. C. Johnson. Pp. 115. (London: Hazell, Watson and Viney, Ltd.) 1s. net.

Contributions from the Jefferson Physical Laboratory of Harvard University for the Year 1911. Vol. ix. (Cambridge, Mass., U.S.A.)

Palæolithic Man and Terramara Settlements in Europe. By Dr. R. Munro. Pp. xxxiii+507+75 plates. (Edinburgh: Oliver and Boyd; London: Gurney and Jackson.) 16s. net.

CONTENTS.

| | PAGE |
|---|------|
| Thermodynamics of the Atmosphere | 31 |
| The Story of "Eight Deer" | 32 |
| Submerged River-valleys | 32 |
| Our Bookshelf | 33 |
| Letters to the Editor:— | |
| Practical Mathematics.—Prof. John Perry, F.R.S. | 34 |
| Polymorphism in a Group of Mimetic Butterflies of the Ethiopian Nymphaline Genus <i>Pseudacraea</i> .—Prof. E. B. Poulton, F.R.S. | 36 |
| Wireless Telegraphy and Terrestrial Magnetism.—Dr. C. Chree, F.R.S. | 37 |
| On the Structure of the Stromatoporoid Skeleton, and on Eozoon.—R. Kirkpatrick | 37 |
| The Striation of Stones in Boulder Clay.—Prof. Grenville A. J. Cole | 37 |
| Boulder Clay in Essex.—J. Reid Moir | 38 |
| The <i>Titanic</i> .—Rev. Dr. A. Irving | 38 |
| Studies of Aurora. (<i>Illustrated</i>). By Dr. C. Chree, F.R.S. | 38 |
| Prof. Thomas Winter | 40 |
| The British Association at Dundee. By Prof. John Perry, F.R.S. | 41 |
| Section B.—Chemistry.—Opening Address by Prof. A. Senier, Ph.D., M.D., D.Sc., President of the Section | 43 |
| Section C.—Geology.—Opening Address by B. N. Peach, LL.D., F.R.S., President of the Section | 49 |
| Notes | 56 |
| Our Astronomical Column:— | |
| Discovery of a Comet | 60 |
| The Markings of Jupiter | 60 |
| Observations of Nova Geminorum No. 2 | 60 |
| The Orbit of ξ Persei | 60 |
| Catalogue of Stellar Parallaxes | 60 |
| The Orbits of Comets | 60 |
| American Mineral Statistics. By H. L. | 61 |
| Income of American Colleges of University Rank | 61 |
| University and Educational Intelligence | 62 |
| Societies and Academies | 63 |
| Books Received | 64 |