As regards the technological examinations, Mr. Mangus said that four years ago the institute took over these examinations from the Society of Arts, which had previously conducted them under somewhat different conditions. The candidates have increased very much during these four years, especially those in mechanical trades. At the time of the transfer of the examinations, the number of candidates was 212, whereas this year, 1883, the number of candidates amounted to 2397.

The Council of the Institute are very desirous that scholarships should be established in connection with the Finsbury College and other similar technical Colleges throughout the kingdom, to enable promising pupils to carry on their education at the Central Institution. If children could be taught sufficient mathematics and elementary science to be transferred from the Board schools to the Finsbury College, or to some other technical school, and thence to the Central Institution, he considered the ladder of technical education would be complete.

He thought that the Board might further aid in assisting technical education by the loan of its rooms for the formation of evening classes, it being always understood that, in order that the instruction should be of any use, it must be of a practical character, and that the classes should be well furnished with all necessary models, apparatus, &c.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

MR. THOMAS PURDIE, Ph.D., B.Sc., Associate of the Royal School of Mines, has been appointed Professor of Chemistry in the University of St. Andrews, vacant by the retirement of Dr. Heddle.

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, December 4, 1884.—William Carruthers, F.R.S., Vice-President, in the chair.—The following were elected Fellows of the Society:—The Hon. F. S. Dobson, W. A. Haswell, Geo. W. Oldfield, Dr. G. W. Parker, M. C. Potter, T. J. Symonds, W. A. Talbot, and J. H. Tompson.—Mr. W. T. Thiselton Dyer exhibited:—(1) Examples of leaves of *Sagittaria montevidensis* under different modes of cultivation, the changes thus induced as regards size and general facies being most remarkable, so much so that they might be deemed widely separate genera. The small leaves were from a plant raised from seeds collected in Chili by Mr. J. Ball, F.R.S., and sent to Kew in 1883, and grown in a pot half submerged in the *Nymphæa* tank. The enormously large leaf and spike were those of a plant raised from seeds, ripened at Kew, and sown in spring (1884). When strong enough the plant was planted in a bed of muddy soil, kept saturated by means of a pipe running from the bed to the *Nymphæa* tank. (2) A special and peculiar instrument called a "Ladanisterion," from Crete, it being a kind of double rake with leathern thongs instead of teeth, and used in the collecting of gum Labdanum, a drug now dropped out of modern pharmacy. The instrument in question was procured for the Kew Museum by Mr. Sandwith, H.M. Consul in Crete. (3) A collection of marine Algæ from West Australia, brought to this country by Lady Broome.—A paper was read by Dr. Francis Day on the relationship of Indian and African fresh-water fish-fauna. In this communication the author refers to certain papers of his, read before the Society on previous occasions, but he more particularly deals with the differences shown between his own statements therein and those subsequently given by Dr. Günther in his "Introduction to the Study of Fishes." Dr. Day is inclined to believe that in the consideration of Indian fish distribution there seems a possibility that certain marine forms, for example, the Acanthopterygian *Lates*, the Siluroid family Arünæ, and others have been included among the fresh-water fauna by Dr. Günther, whereas fresh-water genera, such as *Ambassis*, several genera of the Gobies, *Sicydium*, *Gobius*, *Eleoteris*, &c., have been omitted from the fresh-water fauna of India by Dr. Günther. Thus Dr. Day attempts to show that there may be less affinity between the African and Indian regions, so far as fresh-water fishes are concerned, than there is between his restricted Indian region and that of the Malay Archipelago. He adds that of 87 genera found in India, Ceylon, and Burmah, 14 extend to Africa, 44 to the Malay Archipelago, whereas out of 369 species only 4 extend to Africa and 29 to the Malay Archipelago.—On the growth of trees and protoplasmic continuity, was a paper by Mr. A. Tylor, giving his experiments in the curvature assumed by branches, particularly those of the horse-chestnut. He pointed out that the terminal bud is constantly directed upward, but is straightened out at a later stage of growth. Further, he found that terminal buds, when directed by being tied against a tree-trunk or plank, invariably turned away from the obstruction irrespective of the incidence of light. When the growing points of neighbouring branches were turned directly towards each other, they mutually turned aside or one stopped growth. Some co-ordinating system was necessary to enable the parts to act in concert, and he attributes this to a continuity of the threads of protoplasm.—A paper was read on *Heterolepidotus grandis*, a fossil fish from the Lias, by James W. Davis. The author describes the specialities of this form, and remarks that the genus had been instituted by Sir Philip Egerton for certain forms closely related to Lepidotus, but differing in their dentition and scaly armature. The *H. grandis* has interest, among other things, in the attachment of the dorsal and anal fins with the series of well-developed interspinous bones, in the peculiar arrangement of the articular apparatus of the pectoral fins, and in the heterocercal form of the tail.

Chemical Society, December 18, 1884.—Dr. Russell, F.R.S., in the chair.—The following gentlemen were elected Fellows:—W. P. Ashe, Sir B. V. S. Brodie, Bart., J. F. Ballard, W. Briggs, M. T. Buchanan, W. G. Brown, H. M. Chapman, W. H. Eley, J. Frost, T. P. Hall, H. J. Hodges, H. Jackson, F. Johnson, J. D. Johnstone, G. F. Kendall, C. W. Low, F. M. Mercer, P. C. Porter, V. E. Perez, A. Rickard, K. B. B. Sorabji, R. B. Steele, H. Smith, E. G. Smith, G. Thorn, W. Tate, P. C. Thomas, T. Wilton, J. H. Worrall, W. C. Wise, W. H. Wood.—The following paper was read:—Chemico-physiological investigations on the cephalopod liver and its identity as a true pancreas, by A. B. Griffiths. The author could not detect any bile acids or glycogen in this organ, but a ferment obtained from it by glycerine converted starch paste into sugar, and formed from fibrin, obtained from the muscular fibres of a young mouse, leucin and tyrosin, the latter body giving, with a neutral solution of mercuric nitrate, a red precipitate. It was announced that at the next meeting, January 15, Prof. Thorpe would read a paper on the atomic weight of titanium, and that Dr. Frankland would give a lecture in February on chemical changes produced by micro-organisms.

Royal Microscopical Society, December 10, 1884.—Rev. Dr. Dallinger, F.R.S., President, in the chair.—Mr. Crisp exhibited Dr. Cox's radial microscope, a simplified form of Mr. Wenham's stand.—Mr. J. Mayall, jun., exhibited a new stage which he had devised, in which the thin upper plate was abolished and a frame to hold the slide substituted, which is not liable to flexure.—Mr. Crisp also exhibited Ward's eye-shade, Bausch's adapter for a spot lens, and Kain's mechanical finger.—Mr. Rosseter's paper on the gizzard of the larva of *Corethra plumicornis* and its uses, and one of Mr. G. F. Dowdeswell, on variations in the development of a Saccharomyces, were read and discussed.—A communication was read from Dr. Cox, the President of the American Society of Microscopists, expressing scepticism as to the possibility of making sections of diatoms so thin as those claimed by Dr. Flögel, as recently published in the Society's *Transactions*.—Mr. Parsons exhibited the hydroid form of *Limnocodium Sowerbii*, the fresh-water Medusa which he had found in April last at the Botanic Gardens, Regent's Park.—Dr. Zenger's method of mounting diatoms so as to show both sides was explained, and some mounts exhibited.—Mr. Cheshire gave a *résumé* of his paper on some new points in the anatomy of the bee. It has long been known that the queen bee, in common with many insects, stores the spermatozoa she receives from the male in a small sac, which is called the spermatheca. A long chain of evidence has also satisfied entomologists that in some way these spermatozoa are transferred to those eggs which are to be converted into undeveloped females known as workers, but the manner of this fertilisation has not hitherto been demonstrated. By carefully dissecting out a spermatheca with its attachment to the oviduct unbroken, and then by needle-knives cutting through the trachea which incloses it completely, the spermatheca and its valve may be isolated. It is then seen to be accompanied by a long double gland having a centrally-placed duct, provided with a sphincter muscle near its junction with the aperture of the spermatheca. The spermatheca itself carries a sphincter and three muscles, two to aid and