Applications should be addressed to the secretary of the Institution of Civil Engineers, Great George Street, Westminster, S.W. Further particulars may be obtained on application to the secretary of the institution.

IN the technical schools of this country the library is usually a comparatively unimportant factor in the intellectual work done by the institution in question. This is perhaps partly due to the insistent and ever-growing claims of the laboratories and workshops for apparatus, plant, &c. As a result of this and other causes, the higher work of many technical institutions is seriously hampered by the inadequate provision of scientific and technical literature, works of reference, and the journals of the learned societies. Not only is there a deficiency in the supply of books and journals open to the student, but in some cases the libraries themselves are small, badly lit, noisy, and crowded. This militates against fostering those habits of study which are essential to the progress of the student, especially as in some cases the technical student is unable to secure a quiet working place in his or her own home. The magnificent new library at the Battersea Polytechnic, recently presented by the munificence of Mr. Edwin Tate, and opened on October 21 by the Archbishop of Canterbury, is excellently adapted for study and reading by those attending classes at the polytechnic. The library is 70 feet long and 30 feet wide, and is erected at the south-western corner of the polytechnic, and can be approached both from the main corridor and the present reading-room. At the western end of the library is a wide bay containing a beautiful stained-glass window. The book-cases project at right angles to the wall, forming bays to seat readers, and the gallery runs round three sides of the library. The total book accommodation is 18,000 volumes. The whole of the fittings and panelling are of oak, the floor being of teak. As the building stands close to the road there are double casements, the inner ones being filled with ornamental lead glazing. As regards lighting, there is a separate window to each bay. Speaking generally, the library is planned on lines similar to those on which all modern university libraries are being developed, the books, for instance, being accessible at once to all students. The cataloguing is by card. Efforts are being made to obtain funds in order to increase very largely the technical and scientific portions of the library. It may be mentioned that the library is of considerable use, not only to students of the polytechnic, but also to certain local firms. Some little time ago a circular was sent from the polytechnic to the local chemical firms inviting them to utilise, if they wished, the works of reference and technical journals in the library.

AT the meeting of the Education Committee of the London County Council on October 26 the question of the senior scholarships awarded by the council was under discussion. It was eventually decided to increase the number of these scholarships in 1912. Just as it was necessary to increase the number of intermediate scholarships in 1910 when the first batch of junior scholars attained the age of sixteen, so it will be necessary to increase the number of senior scholarships in 1912 when the same candidates reach the age of eighteen. The number of senior scholarships available for competition at present is 50; in 1912 it will be 100. The standard required for the award of these senior county scholarships is, however, not to be lowered in any way. It is estimated that the annual cost of awarding 100 of these scholarships will be 20,000*l*. In the award of senior county scholarships the council has regard, in the first instance, to the past achievements of the candidates and to the reports of the teachers under whom they have worked and of other responsible persons acquainted with the candidates, and such reports must have reference to the character and qualifications of the applicants as well as their scholastic attainments. The scholarships consist of a maintenance grant not exceeding 90*l*. a year. This amount is in each case determined after consideration of the requirements and the financial circumstances of the candidate. Senior county scholarships are, as a rule, tenable for a length of time necessary for a student to take an honours degree in the subject selected, provided that this period is not more than four years When the scholarship has been held for four years the council may, in a limited number of cases, continue the scholarship for a fifth year if satisfied that there are exceptional circumstances which render such further continuance desirable. At present the income of the parents or guardians of a scholarship holder must not exceed 400*l*. a year. A proposal to abolish this limit was referred back to the higher education sub-committee for further consideration.

SOCIETIES AND ACADEMIES.

LONDON.

Institution of Mining and Metallurgy, October 19.—Mr. Edgar Taylor, president, in the chair.—A. J. **Bensusan**: Notes on passagem mine and works.—R. H. **Kendall**: Treatment of refractory low-grade gold ores at the Ouro Preto Gold Mine, Brazil. These two papers, which were discussed conjointly, both deal with the same mines from slightly different points of view, so that one may be taken as the complement of the other. The ore treated is composed of quartz, tourmaline, arsenical and iron pyrites, with some bismuth, and the method of high concentration had to be adopted in view of the difficulties and losses encountered with amalgamation in the presence of arsenical pyrites and bismuth. The ore from the mine passes through grizzlies and rock-breakers to two series of Californian stamps, eighty head in all, and thence over blankets. The material remaining on the blankets is piped to *passadores* for daily concentration, and the concentrate passes through a second *passador* and thence to *bateas*, whence the gold dust is recovered, and the tailings return to the *passador*, and thence with the first *passador* tailings to the concentrates cyanide plant. The pulp from the mortar boxes passes over Frue vanners, whence the rich concentrates pass to the cyanide plant, and the tailings pass through spitzkasten and thence through the sands and slimes cyanide plants respectively. The papers describe the various processes and the plant in considerable detail, and give statistics as to costs, time of operations, and results.—J. Egerton **Wood**: A method of collecting gold from pannings. A short note dealing with a simple means of collecting and preserving gold values obtained in the field until such time as they can be be cupelled in the laboratory.

PARIS.

Academy of Sciences, October 24.—M. Émile Picard in the chair.—A. **Haller**: Two active alcohols and a third ketone contained in spirit from cocoanut oil. The raw material used in the investigation was a bye-product in the purification of cocoanut oil. Apart from acids separated by alkalies, possibly arising from saponification of fatty bodies, methyl-heptyl-ketone, methyl-nonyl-ketone, and methyl-undecyl-ketone were isolated, as well as methyl-heptyl-carbinol and methyl-nonyl-carbinol. The two alcohols were dextrorotatory, the optical inverse of the alcohols isolated from oil of rue.—M. **d'Arsonval**: The second International Congress for the Suppression of Adulteration.—Henri **Douvillé**: How species have varied. As the result of a comparative study of the Lamellibranchs, the author is of opinion that the evolutionary changes have not been continuous, but have occurred in a series of abrupt steps separated by periods of stability.—MM. **Landouzy** and L. **Loederich**: Experimental study of heredity in tuberculosis. The experiments were made on guinea-pigs. dogs, and rabbits, and evidence was obtained of direct placental infection. In the cases where there was no direct infection the mortality was very high from causes other than tuberculosis.—F. **Robin**: The variation of resistance of steels to crushing as a function of the temperature. Relations between the static and dynamic properties of the steels. Data are given for copper, nickel steel, manganese steel, and three steels containing 0·07, 0·384, and 1·8 per cent. of carbon at temperatures ranging between −185° and 1400° C.—Edouard **Salles**: The diffusion of gaseous ions. Experiments were carried out with air, carbon dioxide, nitrogen, and oxygen; measurements were carried out with air at two pressures, 758 mm. and 1028 mm., and with nitrogen at four, 760 mm., 1000 mm., 1120 mm., and 1302 mm.—J. **Duclaux**: Refrigerating mixtures. A lowering of temperature is produced when carbon bisulphide is mixed with acetone. A simple apparatus is described, utilising the regenerative

principle, by means of which a volume of 20 c.c. can be continuously maintained at a temperature 70° below that of the room, with an expenditure of 100 c.c. of carbon bisulphide and 70 c.c. of acetone per hour.—Jean **Villey**: The measurement of very small displacements by means of the electrometer. A condenser formed of two parallel plates and charged to a suitable potential is applied to measure extremely small displacements of one of the plates. Using an electrometer giving a motion of 150 cm. per volt on a scale 350 cm. distant, with a condenser formed of circular plates 6·5 cm. radius and 158 μ apart, a displacement of the spot of 150 cm. on the scale is obtained when the condenser plate, charged to 176 volts, is moved 0·001 mm., or a magnification of 1,500,000. The sensibility exceeds that of the interference methods.—J. **Carvallo**: The electrical purification of liquid sulphur dioxide and its electrical conductivity. Liquid sulphur dioxide, already fairly pure, is further purified by the prolonged passage of a current at a high potential. The limiting values obtained for the conductivity do not follow Ohm's law, but laws which recall those governing the conductivity of gases.—Paul **Nicolardot** and Georges **Chertier**: The nitrous esters of cellulose. In an attempt to find the cause of the differences in the percentage of nitric nitrogen in guncotton when determined by the Schlœsing and Crum methods respectively, the author was led to examine the action of the nitrogen peroxides on cotton in presence of glacial acetic acid. The nitro-products thus obtained appear to contain nitrites, and do not yield their true percentage of nitrogen by the Crum method.—MM. **Magnan** and **Perrilliat**: An acephalous human monster.—Mme. V. **Henri-Cernovodeanu**, MM. Victor **Henri**, and V. **Baroni**: The action of the ultra-violet rays upon the tubercle bacillus and upon tuberculin. After a short exposure to the ultra-violet rays the tubercle bacilli are attenuated; after a more prolonged exposure they are destroyed. Tuberculin, after a very long exposure (five hours), gives no reaction with tuberculous guinea-pigs.—A. **Fernbach** and A. **Lanzenberg**: The action of nitrates in alcoholic fermentation. Nitrates are not prejudicial to the fermentation.—E. **Roubaud**: The influence of the physiological reactions of Glossina in the salivary development, and the virulence of the pathogenic trypanosomes.—Paul **Marchal**: Contribution to the biological study of Chermes.—M. **Fabre-Domergue**: The storage of oysters in filtered water. After remaining for eight days in filtered water oysters do not diminish in weight, and do not appear to be depreciated in any way.—Carl **Störmer**: The situation of the zone of maximum frequency of the aurora borealis according to the corpuscular theory.

DIARY OF SOCIETIES.

THURSDAY, NOVEMBER 3.

ROYAL SOCIETY, at 4.30.—The Origin of the Hydrochloric Acid in the Gastric Tubules: Miss M. P. Fitzgerald.—(1) Trypanosome Diseases of Domestic Animals in Uganda. II. *Trypanosoma Brucei*. (Plimmer and Bradford); (2) Trypanosome Diseases of Domestic Animals in Uganda. III. *Trypanosoma vivax* (Ziemann): Colonel Sir D. Bruce, C.B., F.R.S., and others.—Further Results of the Experimental Treatment of Trypanosomiasis; being a Progress Report to a Committee of the Royal Society: H. G. Plimmer, F.R.S., Capt. W. B. Fry, and Lieut. H. S. Ranken.—On the Peculiar Morphology of a Trypanosome from a case of Sleeping Sickness and the possibility of its being a new Species: Dr. J. W. Stephens and Dr. H. B. Fantham.—Note upon the Examination of the Tissues of the Central Nervous System, with Negative Results, of a case of Human Trypanosomiasis, which apparently had been cured for years by Atoxyl Injections: Dr. F. W. Mott, F.R.S.—On a remarkable Pharetronid Sponge from Christmas Island: R. Kirkpatrick.

LINNEAN SOCIETY, at 8.—Biscayan Plankton, Part XIII. The Siphonophora: H. B. Bigelow.—Plankton Fishing in Hebridean Seas: Prof. W. A. Herdman, F.R.S.

RÖNTGEN SOCIETY, at 8.15.—Presidential Address: Dr. G. H. Rodman.

MONDAY, NOVEMBER 7.

ARISTOTELIAN SOCIETY, at 8.—Self as Subject and Self as Person: S. Alexander.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—A Sixth Journey in Persia: Ancient Parthia, Nishapur, and Turshiz: Major Molesworth Sykes, C.M.G.

SOCIETY OF ENGINEERS, at 7.30.—Public Slaughter Houses: S. M. Dodington.

TUESDAY, NOVEMBER 8.

ILLUMINATING ENGINEERING SOCIETY, at 8.—Recent Advances in, and the Present Status of Gas Lighting: F. W. Goodenough.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The London County Council Holborn to Strand Improvement, and Tramway Subway: G. W. Humphreys.

WEDNESDAY, NOVEMBER 9.

GEOLOGICAL SOCIETY, at 8.—The Rhætic and Contiguous Deposits of West, Mid, and Part of East Somerset: L. Richardson.—Jurassic Plants from the Marske Quarry: Rev. G. J. Lane.

THURSDAY, NOVEMBER 10.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: The Tidal Observations of the British Antarctic Expedition, 1907: Sir George Darwin, K.C.B., F.R.S.—Conduction of Heat through Rarefied Gases: F. Soddy, F.R.S., and A. J. Berry.—The Chemical Physics involved in the Precipitation of Free Carbon from the Alloys of the Iron Carbon System: W. H. Hatfield.—On the Determination of the Tension of a recently-formed Water surface: N. Bohr.

MATHEMATICAL SOCIETY, at 5.30.—Annual General Meeting.—The Relation of Mathematics to Experimental Science (Presidential Address): Sir W. D. Niven.—Properties of Logarithmico-exponential Functions: G. H. Hardy.—The Double Six of Lines: G. T. Bennett.—On Semi-integrals and Oscillating Successions of Functions: Dr. W. H. Young.—On the Existence of a Differential Coefficient: Dr. W. H. Young and Mrs. Young.—The Analytical Extension of Riemann's Zeta-function: F. Tavani.—The Geometrical Representation of non-real Points in space of Two and Three Dimensions: T. W. Chaundy.—The Extension of Tauber's Theorem: J. E. Littlewood.—A Note on the Property of being a Differential Coefficient: Dr. W. H. Young.—The Stability of Rotating Shafts: F. B. Pidduck.—A Class of Orthogonal Surfaces: J. E. Campbell.—On Non-integral Orders of Summability of Series and Integrals: J. W. Chapman.—Optical Geometry of Motion: A. A. Robb.—Lineo-linear Transformations, specially in Two Variables: Dr. A. R. Forsyth.—On the Conditions that a Trigonometrical Series should have the Fourier Form: Dr. W. H. Young.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Presentation of Scholarships and Premiums.—Inaugural Address of the President: S. Z. de Ferranti.

FRIDAY, NOVEMBER 11.

ROYAL ASTRONOMICAL SOCIETY, at 5.

MALACOLOGICAL SOCIETY, at 8.—On the names used by Bolten and Da Costa for genera of Venerdiæ: A. J. Jukes-Browne, F.R.S.—On New Melaniidæ from Goram and Kei Islands, Malay Archipelago: H. B. Preston.—On the Anatomy of the British Species of the Genus Psammobia: H. H. Bloomer.—Note on *Triton tesselatus*: Major A. J. Peile.

PHYSICAL SOCIETY, at 8.—On the supposed Propagation of Equatorial Magnetic Disturbances with Velocities of the Order of 100 miles per second: Dr. Chree, F.R.S.—On Cusped Waves of Light and the Theory of the Rainbow: Prof. W. B. Morton.—Exhibition of a Brightness Photometer: J. S. Dow.

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