

THE University of King's College, Windsor, Nova Scotia, is to be moved to Halifax. A large part of its buildings was destroyed by fire in 1920, and its work has since been carried on with much difficulty in cramped and uncomfortable quarters. The Carnegie Corporation of New York will make a large grant towards the expenses of re-establishing the college at Halifax, where its work will be carried on in association with the University of Dalhousie. Its engineering courses will be discontinued.

IN accordance with the terms of the will of the late Sir Archibald Dawnay, the Royal Institute of British Architects has awarded one scholarship of 50*l.* per annum to Mr. R. W. Donaldson (University of Liverpool), and two scholarships of 25*l.* per annum each to Mr. R. H. Turner (University of Liverpool) and Mr. A. E. Cameron (Architectural Association). Mr. C. H. Hutton (University of Liverpool), who was awarded a scholarship of 25*l.* for 1922-1923, has been granted a renewal of his scholarship for 1923-1924. The scholarships are intended to foster the advanced study of construction and the improvement generally of constructional methods and materials and their influence on design.

A PRIZE fellowship of 1000 Swedish kronor, offered for research in science by the Swedish Federation of University Women, has been awarded to an Englishwoman, Mrs. Muriel Wheldale Onslow. Mrs. Onslow is distinguished for her work on the biochemistry of plants. She has already been an "N" Fellow of Newnham College, Cambridge, and in 1915 was awarded a fellowship of the British Federation of University Women. The Swedish award proves that the work of British women in science is noteworthy not only in Great Britain but also in competition with that of other scientific workers, for the fellowship was open to the university women of eighteen countries.

A LIST of qualifications for teachers in technical schools recognised by the Burnham Committee for salary purposes as equivalent to a degree has been approved by the Board of Education, and has recently been issued as Appendix III, to the Report of the Standing Joint Committee on Salaries for Teachers in Technical Schools. (H.M. Stationery Office: Imperial House, Kingsway, London, W.C.2. 1*d.* net. By post, 1½*d.*) In Section (c) Science and Technology the following qualifications are accepted:—(i.) *Academic Qualifications*: Associate of the Royal College of Science, London or Ireland, of the City and Guilds of London Institute, or of the Royal School of Mines; (ii.) *Membership of Professional Societies*: Associate membership of the Institutions of Civil Engineers, Mechanical Engineers, or Electrical Engineers, provided that the Associate Membership Examination has been passed, and that three years' engineering experience after the age of 21 is reckoned as part of the qualification; associateship of the Institute of Chemistry, provided that the Institute's Examination for Associateship has been passed; and membership of the Pharmaceutical Society and Pharmaceutical Chemist, provided that the Qualifying and Major Examinations have been passed, and followed by three years' professional experience; (iii.) *Miscellaneous*: Whitworth scholarship if gained between 1887 and 1922; and the first-class Colliery Managers' Certificate if the holder has three years' industrial experience after the age of 21, and has also obtained the diploma of a recognised mining college. This list may be modified from time to time, and qualifications not included can be submitted to the Board of Education by Local Authorities for approval.

Societies and Academies.

PARIS.

Academy of Sciences, October 8.—M. Albin Haller in the chair.—A. Lacroix: Notice on P. Elie Colin. The greater part of Colin's life was spent in Madagascar, where his work in geodesy, meteorology, and magnetism formed the foundation of all subsequent work in these subjects in the island.—Jean Perrin: Radio-chemistry of fluorescence. The theory developed in an earlier communication is modified to agree with the observation that in certain cases the fluorescent body may enter into chemical combination with the solvent (glycerol) or with oxygen. The influence of temperature on photo-chemical reactions is also investigated.—Ch. Depéret, F. Arcelin, and L. Mayet: The discovery of fossil remains of man of the Aurignacian age at Solutré (Saône-et-Loire). Three complete skeletons were discovered in positions which definitely prove burial. Drawings of the three skulls, with descriptions, are given. The men belonged to the Cro-Magnon race, Aurignacian period, but differ in some respects from the Cro-Magnons of Vézère and Grimaldi.—Alex. Véronnet: The formation of planetary systems and stellar systems.—R. Fortrat and P. Dejean: An attempt to construct a bobbin without iron giving intense magnetic fields. The solenoid was constructed of wires of electrolytic copper, rectangular in section, cooled by a rapid current of water. The apparatus as made could carry a current of 4740 amperes and absorbed 277 kilowatts. A field of more than 40,000 gauss was obtainable.—Louis de Broglie: Quanta, the kinetic theory of gases and Fermat's principle.—L. P. Clerc: A question of photographic perspective.—Albert Portevin: Remarks concerning the relation between Young's modulus and the atomic volume. The equation expressing the relation between Young's modulus, the density and the atomic mass given in a recent communication by Th. Pecalski is identical with results arrived at by Fessenden in 1892. There is approximate agreement between the formula and experiment for certain metals, but for others, notably rhodium, tantalum, and tungsten, there are wide discrepancies, tungsten, for example, giving 42.2 as the modulus against 8.0 calculated.—P. Vaillant: The influence of small variations of temperature on the conductivity of solid salts and the rôle of the humidity in this phenomenon. The results of the experiments described lead to the conclusion that in solid salts the electrical conductivity is largely superficial and due to a particular condition of the surface layer. This accounts for the marked influence of traces of moisture on the observed conductivities.—V. Sorrel: Polarisation capacities with alternating currents.—Marc Bridel: Biochemical study on the composition of *Monotropa hypopitys*. Isolation of a new methyl salicylate glucoside, monotropitine. The extracts of this plant contain two glucosides, monotropeine and monotropitine, the latter being new: they are readily separated by their different solubilities in acetic ester. The new glucoside, monotropitine, has been isolated in the pure, crystalline state. Some physical and chemical properties are given: it does not appear to be identical with gaultherine.—René Wurmser: Energy yield and chlorophyll assimilation.—A. Maige: Remarks concerning the formation and digestion of starch in plant cells. The theory best in accord with known facts on the formation and digestion of starch in plants consists in regarding these two phenomena as due to entirely distinct catalytic actions.—G. Truffaut

and N. Bezssonoff: The influence of the sugar concentration of the media on the activity of nitrogen fixing bacteria. Both for the development of the aerobic bacilli in a non-nitrogenous medium and for the fixation of nitrogen in those possessing this property, low sugar concentrations of the order of 1 in 1000 are more advantageous than those usually employed.—M. Lemoigne: The butyleneglycollic fermentation of calcium lactate by bacteria of the *B. subtilis* group. The formation of 2-3-butyleneglycol and acetylmethylcarbinol by the action of bacteria of the *B. subtilis* group on calcium lactate has been proved. The action is slow and difficult to detect.—H. Barthélémy: The action of water, common salt, sodium bromide, and calcium chloride on the spermatozooids of *Rana fusca* and *Bufo vulgaris*.—A. Weber: Does the rupture of the branchial operculum at the moment of metamorphosis of Batrachians demonstrate the transmission of an acquired character?

VIENNA.

Academy of Science, July 12.—R. Wettstein, president, in the chair.—Fritz Früchtl: A contribution to the knowledge of the qualitative and quantitative distribution of Copepoda in the Plankton of the North Adriatic and of their ectoparasites. The use of graphic representation in distribution-maps.—Gerhard Kirsch and Hans Pettersson: On the destruction of atoms by α -particles. A study of the H-particles produced when atoms are destroyed by swift α -particles. The ranges of the atomic fragments (H-particles) are 18 cm. for beryllium, 12 cm. for silicon, 13 cm. for magnesium in air. The ratio between the H-particles produced and the number of α -particles employed is about 10^{-6} for beryllium, 6×10^{-6} for silicon and magnesium.—J. Hepperger: On the heliocentric velocity of meteors. Theoretical representation of the relative numbers of the frequency of meteors. Assuming the heliocentric velocity of the meteors to amount to 74 km. per second, the number of meteors per hour ascertained by observation may be made to agree with the relative numbers.—Julius Zellner: Contributions to comparative phytochemistry. Chemical analysis of the leaves and flowers of *Knautia sylvatica*.—Konstantia Püringer: Chemical analysis of the leaves and flowers of *Chamaenerion angustifolium*. Quantitative determinations show agreement in constitution for leaves and flowers.—Chaja Feinberg, Johann Herrmann, Leopoldine Rögelsperger, and Julius Zellner: Chemical analysis of the bark of *Acer campestre*, *Corylus Avellana*, and *Alnus incana*.—Josef Einleger, Jolanthe Fischer, and Julius Zellner: Chemistry of heterotrophic Phanerogamia. *Loranthus* was chemically analysed for the first time. Elements have been found in *Viscum* not previously recognised.—Hans Przibram (1): A critique of the transplantation experiments made by R. G. Harrison. The rudiments of the anterior limbs of axolotl embryos, if excised and implanted in the same or neighbouring situations upside down (with dorsal and ventral surfaces reversed), develop into extremities which have the symmetry of limbs belonging to the opposite side of the body. These experiments do not prove a change of the upper side of the rudiment into an under side by the influence of the body as a whole. It is an inversion of the polarity of the extremities, which grow proximally instead of distally. The inversely transplanted rudiment is impeded in the original direction of its growth by the adjacent parts of the body. (2) The causes of animal colouring. The presence of "dopa" (3, 4-dioxyphenyl-

alanin) in the cocoons of night-butterflies and sawflies causes spontaneous formation of melanine when water is admitted. While in the case of day-butterflies the sensitiveness to light of the tyrosinase-ferment plays a part in the adaptation to the brightness of the background, the adaptation of the night-butterflies is caused by the degree of moisture. The cocoons acquire a dark colouring on a moist, dark background.—Alfred Ehrenpreis (1): Curvature of the neck of the larva when the animal pole of the ovum of *Triton alpestris*, Laur., has been punctured. By puncturing the animal pole of fertilised, but still unsegmented, ova of *Triton alpestris*, Laur., Przibram's hypothesis has been confirmed that the prospective signification of the animal half of the ovum is in the formation of dorsal parts of the embryo. An animal developed so far as to form a larva, after puncture had its head bent dorsally at almost a right angle, owing to a deep indentation in the neck due to the puncture. (2) Transplantation of the sperm of full-grown Urodela. Successful transplantation of the whole sperm of *Triton Cristatus*, Laur., by the autophorous method of Przibram. The transplanted spermatozoa were in good condition even four months after the operation; their functions were normal. The formation of the spermatophore was completed in eighteen days.—August Jelinek and Theodor Koppanyi: Mental capacity of rats with an injured brain. Kinæsthetic and optical experiments in training rats, the cortex of the cerebrum of which had been destroyed by thermocautery, proved that the associative memory of the rats is to a very large extent independent of the cortex of the cerebrum.—Sato Kunio and Leonore Brecher: The causes of animal colouring. In vertebrates it is probably the tyrosine in the teguments and dermal coverings that supplies the chromogen. "Dopa," as the element of pigment formation, could not be found in fish, birds, and mammalia.—Leonore Brecher and Ferdinand Winkler: The agreement of positive and negative "dopa"-reactions both in frozen sections and extracts. Frozen sections of rats' eyes, of the scalp of dark-haired men, of the chrysalis of *Vanessa urticae*, and the cocoon *Bombix mori* did not show any "dopa" reaction; "dopa" was found, however, both in frozen sections of the cocoons of *Saturnia pavonia* and *Erigaster lanestris* and in their extracts.—Walter Finkler: (1) Reflex action to absence of moisture of the marsh toad, *Bombinator igneus*, Laur. On dry, clayey soil the toad remains stationary; the hind-legs only make an irregular alternating movement, which is a reflex action, probably in order to save itself from drying up and to get to the deeper, moister layers of earth. On dry ground the toads also lose the reflex of turning round. (2) The influence of external factors on the colour of the iris of marsh toads, *Bombinator igneus*, Laur. The golden colour of the iris of animals kept on moist ground or moss does not change. The iris of toads kept in aquaria becomes whitish when they are illuminated by a mirror from below; the iris acquires a green metallic lustre when the animal is kept on dry ground. When no light is admitted the iris does not change its colour. (3) Experimental variation of the colour of the skin of toads, *Bombinator igneus*, Laur., and *Bombinator pachypus*, Br. If the upland toad is kept on dry clay, light green spots appear on its back, resembling those of the marsh toad. Grey marsh toads turn green on moist clay; when kept in water and illuminated from beneath, a golden colouring with a metallic lustre appears on the two parotids, reminding one of the bronze metallic lustre of the ground-colour found in upland toads.