

—On the existence in cold-blooded animals of a regulating apparatus for heat, by M. J. P. Langlois. Reptiles with impermeable skin have the power of regulating their temperature when it reaches 39° and when the calorific rays strike the head directly.—On the salutary effects of potatoes substituted for bread in diabetics in high doses, sufficient to maintain the equivalence of the food ration, by M. A. Mossé. The carbohydrates which may be given to diabetics can be divided into three classes—harmful, indifferent and doubtful—and the potato has been generally placed in this last group. From the experiments here described, the author concludes that the potato is not only permissible, but useful, and may be advantageously substituted for bread.—Organic variations in the hen with respect to its food, by M. F. Houssay.—On the transformations of the germinative vesicle in lizards, by Mlle. Marie Loyez.—Properties of the liberoligneous chains in ferns, by MM. C. E. Bertrand and F. Cornaille.—A contribution to the study of a new disease of the potato produced by the *Bacillus solanicola*, by M. G. Delacroix.—The influence of nutritive mineral salts on the production of nodosities in peas, by M. E. Marchal.—Conclusions to be drawn from the study of the series of homogeneous enclosures in a volcanic rock; the series of homogeneous enclosures in the andesites from Mont-Dore, by M. A. Lacroix.—The gases of the blood at different altitudes during a balloon ascent, by MM. J. Tissot and Hallion. The decrease of atmospheric pressure caused by a balloon ascent causes a sensible increase in the power of absorbing oxygen possessed by the hæmoglobin; up to 3500 metres the carbonic acid contained in the blood does not follow the law of solution of gases, on the contrary it varies in the inverse sense. The nitrogen in the blood follows the ordinary laws, the amount diminishing as the pressure is reduced.—Reproductions of the Palæolithic drawings engraved on the walls of the cave of Combarelles, by MM. Capitan and Breuil. The paper is accompanied with reproductions of drawings of a horse, reindeer, mammoth and bison.

#### NEW SOUTH WALES.

**Linnean Society, October 30.**—Mr. J. H. Maiden, president, in the chair.—On *Eucalyptus pulverulenta*, Sims, by Mr. J. H. Maiden. The author shows that *E. pulverulenta*, Sims, is conspecific with the "apple or peppermint" of Victoria (one of the trees known as *E. Stuartiana*, F.v.M.) and the "red or black peppermint" of New England (*E. nova-anglica*, Deane and Maiden), both of which he considers to be lanceolar-leaved forms of the species.—On *Eucalyptus Stuartiana*, F.v.M., by J. H. Maiden. The author shows that at least three species of trees have passed under this name, and expresses regret that it is not possible to obliterate the name from the list of species. As this is out of the question, he reiterates the former recommendation of Mr. Deane and himself that its use be confined to the "apple or but but" of Victoria and to the "apple or white peppermint" of New South Wales, the species that probably extends over a greater area than that of any of the other plants included under the name, and the one which was perhaps most frequently named *E. Stuartiana* by Mueller himself.—On *Eucalyptus Gunnii*, Hook. f., by Mr. J. H. Maiden. The author divides the species into the type-form and four varieties, viz., vars. *acervula*, *ovata*, *rubida* and *maculosa*.—The gum-fermentation of sugar-cane juice, by Mr. R. Greig Smith. The viscosity that occasionally develops in cane juice during the manufacture of sugar has been traced to *Bacillus levaniiformans*, n.sp., which ferments saccharose producing gum, a mixture of reducing sugars, carbon dioxide and a mixture of acids. Neither mannite nor alcohol is formed. In a culture medium containing 100 grms. saccharose, 1 gm. peptone and salts dissolved in a litre of water, 31 grms. gum and 60 grms. mixed reducing sugars were produced in seven days at 37°C. The gum is formed from saccharose, but not from lactose, dextrose, levulose, maltose, starch or vegetable infusions without saccharose. Peptone increases the gum and acids relatively, and decreases the mixed reducing sugars. The fermentation goes on, though slowly, in weak peptone (.001 per cent.) solutions. The chemical and optical properties of the gum, which is probably the diffuent capsule of the bacillus, show it to be different from inulin, levulan and other previously described gums; it has, therefore, been named levan. Carbon dioxide is produced in good amount, 1.28 grms. being formed from 100 grms. saccharose in five days. The acids are comparatively small in amount, and consist of active and inactive lactic, butyric, acetic, formic and capric acids. These occur in the ratio of about 60 of lactic acid to

1 of the rest. Many races of *Bac. levaniiformans* were separated from other sources, and these showed that the organism is related to the potato group of bacilli as a whole and not to any one so-called species.—The chemical properties of bacterial gum levan, by Mr. Thos. Steel. The chemical properties of levan, the new gum produced by the action on sugar of the bacillus described by Mr. R. Greig Smith in the preceding paper, are described. The relationship of levan to other similar known substances is detailed, and it is shown to differ in important respects from inulin, the body which it most nearly resembles generally. The gum found in sugar-cane suffering from the well-known "gumming" disease is quite distinct from levan.

## DIARY OF SOCIETIES.

### THURSDAY, DECEMBER 19.

**LINNEAN SOCIETY, at 8.**—On the Brain of Recent and Fossil Lemurs: Dr. G. Elliot Smith.—On the Ostracoda collected round the Funafuti: F. Chapman.—Exhibitions: A Gigantic Argulus from Japan and a Specimen dredged at the Cape: Prof. G. B. Howes, F.R.S.—A New Polyzoon from Tanganyika: J. E. S. Moore.—An Example of White's Thrush (*Turdus varius*), shot near Clavering, Essex: Miller Christy.

**CHEMICAL SOCIETY, at 8.**—(1) Corydaline. Part VII. The Constitution of Corydaline; (2) The Relation of Corydaline to Berberine. The Oxidation of Berberine with Nitric Acid: J. J. Dobbie and A. Lauder.—The Magnetic Rotation of some Polyhydric Alcohols, Hexoses, and Disaccharoses: W. H. Perkin, F.R.S.—Stereoisomeric Halogen Derivatives of  $\alpha$ -benzoylcamphor: H. O. Forster and F. M. G. Micklethwait.—Is Argon an Elementary Substance? G. Martin.

**INSTITUTION OF ELECTRICAL ENGINEERS, at 8.**—Some Principles underlying the Profitable Sale of Electricity: Arthur Wright.

**INSTITUTION OF MINING AND METALLURGY, at 5.**—The Titration, Use and Precipitation of Cyanide Solutions containing Copper: Walter H. Virgoe.—Ore in Sight: J. D. Kendall.—Continuous Section System Mine Sampling: M. H. Burnham.

### FRIDAY, DECEMBER 20.

**INSTITUTION OF CIVIL ENGINEERS, at 8.**—Transmission Dynamometers: A. M. Morgan.

**INSTITUTION OF MECHANICAL ENGINEERS, at 8.**—The Microscopical Examination of the Alloys of Copper and Tin: W. Campbell.

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