In the *Monthly Notices* of the Royal Society of Tasmania for 1874 occur some interesting abstracts of papers read before the Society, including notices of the Angora goat, some species of Tasmanian birds, introduction of the salmon into Tasmanian waters, the Silurian fossils of Tasmania, the Tertiary basin of Launceston, and a list of the plants of Tasmania, prepared in 1875 by Baron Fred. von Mueller. To the notices are appended the meteorological observations made during the year by Mr. F. Abbott at Hobart Town, and by Mr. W. E. Shoobridge at New Norfolk. From the monthly notes we observe that meteorological observations are also made at Port Arthur, Mount Nelson, King's Island, and other places, and sent to the Society, but the results are not published, nor so far as we are aware have they been published since 1866. We hope the Society may soon be in a position not only to publish these results, but also results from a sufficient number of stations, so as to represent adequately the meteorology of the island.

The additions to the Zoological Society's Gardens during the past week include a Cariama (*Cariama cristata*) from South-east Brazil, presented by Capt. W. C. Chapman, H.M.S. *Dido*; two Black-eared Marmosets (*Hepale penicillata*) from Brazil, presented by Mr. G. Newton; a Rose-ringed Parakeet (*Palæornis docilis*) from West Africa, presented by Mrs. Haywood; a Hyacinthine Maccaw (*Ara hyacinthina*) from Brazil, presented by Mr. H. Wilson; a Moor Monkey (*Semnopithecus maurus*) from Java, a Bay Antelope (*Cephalophus dorsalis*) from West Africa, purchased; two Vulturine Guinea Fowl (*Numida vulturina*) from East Africa, a Puma (*Felis concolor*) from Central America, deposited.

SCIENTIFIC SERIALS

Poggendorff's Annalen der Physik und Chemie, No. 3.—According to the kinetic theory of gases, supposing the gaseous molecule to consist of only one atom, the relation of the two specific heats (as Clausius has shown), would be 1·666. The lower number obtained by experiment for several gases may probably be explained by the complex constitution of their molecules. It seemed desirable to MM. Kundt and Warburg to determine experimentally the specific heat of mercury vapour, which has been considered by chemists to consist of monatomic molecules. Their method was to produce a sound in two glass tubes placed end to end, and containing, the one mercury vapour, the other air. Having introduced powder into the tubes, they observed the distances between the nodes of vibration. Applying a formula of acoustics which comprehends, among other things, the densities, the temperatures, and the relation of the specific heats, and taking, as value of this relation in the case of air, the number 1·405, they obtain, for mercury vapour, the number 1·67, which may be considered as fully in accord with the number 1·666 furnished by theory.—In an interesting paper which follows, M. Colley, of Moscow, examines a particular case of work done by the galvanic current. Suppose a current to pass through a vertical column of some salt, *e.g.* nitrate of silver; both electrodes being in this case of silver. In a given time a certain quantity of silver is liberated and deposited. Now, if the current pass up the column, it lifts this silver against the force of gravity, and so does mechanical work, which, in the opposite case (of the current passing down) is not done. It appeared, then, as theory anticipated, that the downward current in such a column (as measured by the galvanometer), was stronger than the upward, and the difference was not greater than theory indicated. But both with a battery current and with that from a Clarke magneto-electric machine, it was considerably less. The author, seeking an explanation, regards as untenable the general views regarding passage of currents through liquid conductors, the phenomena of passage from the solid to the liquid conductor being generally ignored; and he thinks the facts favour Helmholtz's view, which regards the liquid, with the electrodes immersed in it, as a condenser of very great capacity. Weak currents which cannot pass through the liquid yet produce a polarisation of the electrodes (charge of the condenser). With strong currents the only difference is that as soon as the difference of tension has reached a certain limit (maximum of the electromotive force of polarisation), all newly arriving quantities of electricity can unite through the liquid. M. Colley shows how his results are deducible from the state of things thus supposed.—A number of experiments on electric clocks (with Tiede's pendulum) are described by Dr. Joseph Brunn.—Of the few remaining original papers we note one by M. Chwolson on the theory of interference-phenomena.—A good experiment for illustrating the explosive character of a mixture of oxygen and hydrogen gases is described by M. Rosenfeld.

Archives des Sciences Physiques et Naturelles, Jan. 15.—In the opening paper of this number M. de Candolle inquires into the causes of unequal distribution of rare plants on the Alpine chain (See NATURE, vol. xiii. p. 516).—M. Favre follows with a note on the glacial and post-glacial strata of the southern slope of the Alps, in the canton of Tessin and in Lombardy.—M. Pictet discusses the application of the mechanical theory of heat to the study of volatile liquids, and finds some simple relations between the latent heats, atomic weights, and tension of vapours.—A series of meteorological observations from the coast of Labrador, by Moravian missionaries, is communicated by M. Gautier (See NATURE, vol. xiii., p. 60).

SOCIETIES AND ACADEMIES

LONDON

Royal Society, May 18.—"On the Organisation of the Fossil Plants of the Coal-measures.—Part VIII. Ferns continued, and Gymnospermous Stems and Seeds." By Prof. W. C. Williamson, F.R.S., Professor of Natural History, Owens College, Manchester.

The author described the stem of a new fern, in which the principal vascular axis formed a cylinder enclosing a medulla, as in some Lepidodendra. This vascular cylinder gives off secondary bundles, to petioles, and rootlets, and each vessel is filled with tylose. Two kinds of Fern-sporangia were described—one Polypodiaceous, with a straight, vertical annulus; the other, with the annulus horizontal and subterminal, exhibits a type seen in the recent Schizeaceæ and Gleicheniaceæ. But the chief subjects of the memoir are the stems and seeds of Gymnosperms. Of the former various modifications of the *Sternbergian Dadoxylons* are described, and shown to correspond very nearly to many recent conifers, though with distinctive features of their own, especially in the structure of their woody fibres, and in the leaf-bundles of some species being given off in pairs. The author still excludes the Sigillariæ from the Gymnospermous group.

The most important novelties are the Gymnospermous seeds, exhibiting their internal organisation, found in France by M. Grand-Eury, and by the author in this country. Of these he describes a number of new genera and species in addition to the Trigonocarpons previously described by Mr. Binney and Dr. Hooker. The most remarkable of these is one designated *Lagenostoma ovoides*, in which a large flask-shaped cavity, inclosed within a crenulated canopy, occupies the apical end o the seed, between the apex of the endosperm and the exostome. Brongniart believed, with reason, that such cavities have originated in the absorption of the apex of the nucleus, leaving the corresponding part of the nucular membrane to form the cavity or "lagenostome." In this lagenostome large pollen-grains are found in many cases. Brongniart designates it the "Cavité pollinique." Examples of several other seeds presenting generic and specific modifications of the same type, as well as several species of the well-known genus Cardiocarpum and of Trigonocarpum. In all these the primary nucleus seems to have been absorbed, being now only represented by the investing nucular membrane. Within this is an inner structureless bag, which, in some of the Cardiocarpa, is filled with parenchyma, and which appears to represent the *secondary* perispermic membrane, or what is really the endospermic membrane, or *primary* embryosac of the Gymnosperms. The intimate structure of Trigonocarpum agrees with Dr. Hooker's description of it so far as the longitudinal sections are concerned, save that here, also, a "cavité polliniquè" exists. Transverse sections show that the well-known sandstone casts of Trigonocarpum do not represent the external form of these fruits, but are *casts of the interior* of the hard endotesta. This latter was not trigonous externally, like the common specimens, but had twelve longitudinal ridges, three of which, corresponding with those of the sandstone casts, were more prominent than the rest. The endotesta was invested by a delicate parenchymatous sarcotesta. All these seeds appear to have Cycadean