

## SCIENTIFIC SERIALS

*Annalen der Physik und Chemie*, No. 1, 1879.—This begins with a portion of an extended inquiry by Herr F. Kohlrausch into the electric conductivity of aqueous solutions of hydrates and salts of the light metals, as also of sulphate of copper, sulphate of zinc, and nitrate of silver. The paper is in three parts—an experimental, a practical, and a theoretical (the first two in this number). The practical part gives tables for use, and formulæ of conductivity, especially of dilute solutions; specifies bodies which show a maximum of conducting power at a degree of concentration of solution below saturation, indicates liquids which commend themselves as a standard for electric conductivity, &c.—Herr W. Kohlrausch furnishes an experimental determination of the velocities of light in crystals. He employed the new instrument called a total reflectometer, and he comes to the conclusion that Fresnel's theory of double refraction in optically uni- and biaxial crystals gives a form of light wave-surfaces, which, within very small errors of measurement, is in general experimentally confirmed for uniaxial crystals, and for the principal sections of biaxial crystals.—Herr Groshaus contributes some interesting observations on the densities of substances in the gaseous and liquid states, in relation to their chemical composition.—Herr Ritter calculates that the quantity of heat radiated annually from the sun 75,000 years ago must have been about 1 per cent. less than at present (700,000 years ago about 10 per cent. less), a result which is supposed to explain the "glacial period," while the previous tropical climate is accounted for by a less thickness of the solid crust of the earth. He also estimates that each kilogramme of the sun's mass contains on an average about 43,000,000 units of heat.—Herr Wiedemann declines to regard the oxide containing copper separated electrolytically from solutions of acetate of cupric oxide, as a peculiar allotropic modification of copper.—There are also papers on the thermo-electric properties of apatite, brucite, &c. (Hankel), the theory and application of electro-magnetic rotation (Margules), the influence of temperature on galvanic conductivity of liquids (Exner and Goldschmidt), and two new fluorescent substances (Lommel).

## SOCIETIES AND ACADEMIES

## LONDON

Royal Society, February 27.—"Studies in Acoustics. I. On the Synthetic Examination of Vowel Sounds." By William Henry Preece and Augustus Stroh.

The authors had studied the formation of vowel-sounds on Helmholtz's theory, and had succeeded in constructing an instrument which reproduced the principal vowels with greater distinctness and accuracy than the phonograph, and which fully confirmed that theory. In the pursuit of this study they constructed a new phonautograph, a machine for drawing harmonic curves either on paper or on smoked glass, compounded of one or many partials varying in phase and amplitude, called a "synthetic curve machine," a new syren, a new musical instrument dependent on the vibration of a diaphragm and several instruments for reproducing vowel-sounds. They had also studied the intensity of sound, and showed experimentally how loudness was dependent on the quantity of air thrown into vibration, and independent of the amplitude of vibration of the sonorous body which remained constant. They also introduced a new stereoscopic slide, which rendered very complicated curves perfectly perspective.

Linnean Society, February 20.—Prof. Allman, F.R.S., president, in the chair.—The Rev. G. Henslow exhibited portions of an elm bough having a pulley centrally imbedded; exteriorly all trace of its presence was obliterated, and the wood-growth indicated thirteen years subsequent to the entrance of the foreign body.—Mr. R. Bowdler Sharpe showed and commented on a series of rare birds. Among those from New Guinea were skins of *Paradisæa raggiana*, collected by the Rev. Mr. Lawes; of others obtained in the Fijis by Baron von Hugel were species of the genus *Pinarolestes*, which also inhabit Tutuëla, one of the Samoan Islands.—Mr. W. H. Fitch passed round a coloured drawing of a remarkable large crimson-coloured pitcher (twelve inches long by nine in circumference) of *Nepenthes sanguinea*, grown at Bury, by Mr. O. Wrigley.—A paper was read by Dr. H. Trimen, on the genus *Oudneya*, Brown. This is a small cruciferous shrub discovered by Dr. Oudney in the desert between Tripoli and Mourzuk. The genus

has been obscure in consequence of Brown's short insufficient diagnosis. This latter Cosson has shown to be a *Moricandia*, hence Brown's genus has been doubtfully referred to the same. Dr. Trimen shows from an examination of Oudney's herbarium in the British Museum, that *Oudneya* is identical with *Hemophyton*, Coss., which name will supersede, having the priority of thirty-one years.—The abstract of a communication on some South American genera of plants of uncertain position, by Mr. John Miers, was read by the Secretary. The author refers the *Pleoginea* of Arruda da Câmara, who mentions three species belonging to the Chryobalanaceæ, but of which two only should be retained in that genus, the third belonging to the true *Conceia*, Aublet. Among *Parinariæ* the two species described and figured by Aublet alone ought to be retained. Those to be excluded are the two British Guiana species of Benthams, and seven others of Brazilian origin described by Dr. Hooker, and which from their floral structure and development of fruit do not differ from *Licania*. The Malayan species of Blume are now shown to belong to the *Petrocarya*, Jack., while the African species enumerated by De Candolle, together with five others yet undescribed, must be referred to *Griffonia*, Benth. and Hook., a genus notable for the conferrimation of the cotyledon of the embryo. The genus *Minquartia*, Aubl., belongs to the *Crescentiaceæ*, as does *Senapea*. Benthams and De Candolle's *Kigelia* are widely different, the *K. africana*, Benth., properly belonging to *Triplinnaria*. The genus *Managa*, Aubl., Mr. Miers avers belongs to the *Aurantaceæ*; *Racceria*, Aubl., does not come under *Sapindaceæ*, as De Candolle supposed, but to the *Meliaceæ*, and is allied to *Melia* and *Azenderachta*, Juss.—Dr. Maxwell Masters next gave the chief points of a paper on the inflorescence of *Crassulaceæ*. Though devoted chiefly to this group he discussed the schemes of classification proposed by Roeper, Bravais, and others, as also the emendations of Hofmeister, Sachs, and the modern German school of botanists. He proposed a re-arrangement under the heads of Monopodial, or indefinite; Choripodial, or dichotomous; and Pleiopodial, or definite; the latter comprising the Sympodial varieties. The modifications brought about by suppressions, adhesions, congenital or otherwise, real or apparent, and by displacement of varying kind and degree were alluded to, the general conclusion being that while suppressions and adhesions do occasionally occur, yet that in most instances the phenomena witnessed might easily be explained by displacement of parts, and especially by that process of elongation known as up-lifting. The history of development, as well as the internal structure, he believes are consistent with this latter view, but not, as a rule, with the theory of adhesion.—Messrs. Ed. A. Fitch, Laurence Scott, and Wm. Stone were elected Fellows of the Society.

Chemical Society, February 20.—Dr. Gladstone, president, in the chair.—The following papers were read:—On colouring-matters derived from diazo compounds, by Dr. O. N. Witt. For some time after the introduction of anilin dyes, though magentas, violets, and blues were obtained in profusion, no choice of yellow or green anilin dyes was to be had. A few years back, however, a beautiful yellow dye, chrysoïdin, was described by Hofmann, and since that time numerous patents have been taken out for the manufacture of similar substances. In the present paper the author gives an account of these various substances, which are oxy or amido derivatives of azobenzene, including the different tropæolins.—Investigations into the action of substances in the nascent and occluded conditions; hydrogen, continued by Dr. Gladstone and Mr. Tribe. The authors have investigated the actions of nascent hydrogen obtained by electrolysis and hydrogen occluded in palladium or platinum on nitric and sulphuric acids; they establish a close similarity of character, and therefore of condition between the so-called nascent hydrogen and the hydrogen occluded by metals.—On some methods of vapour density determinations, by Mr. J. T. Brown. The author criticises the methods and formulæ of previous experimenters, and suggests the determination of the vapour tensions of mercury by estimating the vapour tension of a substance over Wood's metal and over mercury at different temperatures.—On the decomposition products of quinine and the allied alkaloids, by Mr. J. J. Dobbie and Dr. W. Ramsay. The authors have oxidised the four principal alkaloids derived from cinchona bark, and find that they all yield, on oxidation, the same acid, tricarboxyridenic acid. They also point out that there is a close relation between the cinchona bark alkaloids and the bases of the pyridin series.

Geological Society, February 5.—Henry Clifton Sorby, F.R.S., president, in the chair.—Arthur Ernest Baldwin, James