

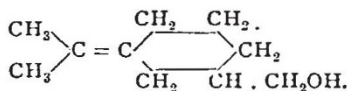
generally all ready for operation 9, in which the optical compass is employed. This is a most important one, for not only are the horizontal measures made, on which so much depends, but in addition the plane of the wires and fibres are made identical, the corresponding scale reading is found, and any eccentricities are measured and may be corrected.

(To be continued.)

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, July 30.—M. Lœwy in the chair.—Conditions necessary for the production and the perception of murmurings in tubes through which air-currents pass, by M. A. Chauveau.—On certain of the later geological and climatic phases in Barbary, by M. A. Pomel. The quaternary period was marked in Barbary by (1) a rainy phase with formation of alluvial deposits, followed by (2) a dry period characterised by the formation of travertinous crusts, and (3) the partial submergence and reappearance of the coast districts with the production of a narrow band of marine beds and a moderately humid climate, which has since deteriorated to the present condition of excessive dryness.—Report on M. Bigourdan's memoir "On the micrometric measurement of small angular celestial distances, and on a method of perfecting this kind of measurement," by MM. Lœwy, Tisserand, and Wolf. The method used by the author for the measurement of micrometric angular distances consists in the use of glass points in place of the micrometer threads, so that the image is never blotted out by superposition. It allows of much easier work, and is at least as accurate as any method previously employed.—On the theory of differential quadratic formulæ, by M. Wladimir de Tannenberg.—On the integration of certain systems of equations with derived partials of the first order involving several unknown functions, by M. Riquier.—On the absorption of light in isotropic and crystallised media, by M. G. Moreau.—A contribution to the study of the structure of steel, by M. F. Osmond. With moderately hard steel, containing 0.45 per cent. of carbon and 0.35 per cent. of manganese, the structure was found to vary gradually in samples all originally heated to 825° C. and quenched in water at 15° C. after cooling to 720°, 690°, 670°, 650°, and 640° respectively. Hardening from 640° left the structure almost the same as slow cooling. With hard steel, containing 1.24 per cent. carbon, the variation is more rapid; the temperature of maximum hardening lies very near to that of no hardening. The structure, as studied by polished surfaces, in steel of moderate hardness gives information concerning (1) the maximum temperature of heating, (2) the temperature from which it has been hardened, and (3) the rate of cooling.—A refractometer with a chamber capable of being heated, and its application to measurements with fatty substances, by M. Féry.—On the constitution of rhodinol from essence of Pelargonium, by MM. Ph. Barbier and L. Bouveault. Rhodinol is demonstrated to be a primary alcohol, C<sub>10</sub>H<sub>18</sub>O, containing one ethylenic grouping; it is a cyclic compound, and its rotatory power and that of its derivatives prove the presence of an asymmetric carbon atom. The consideration of the foregoing, together with the ease with which on oxidation it yields acetone and α-methyladipic acid, leads to the provisional formula:—



—Action of thionyl chloride on some inorganic acids and organic compounds, by M. Ch. Moureu. With mineral acids SOCl<sub>2</sub> gives the corresponding chlorhydrins; with aldoximes it yields nitriles by dehydration; with oxalic and formic acids it behaves just like sulphuric acid. In each case equal volumes of hydrogen chloride and sulphur dioxide are liberated.—On the stability of aqueous solutions of mercuric chloride, by M. E. Burcker.—The oxidation of beer worts, by M. P. Petit.—The mechanism of the influence of toxic substances acting by means of secondary causes in the production of infection, by MM. Charrin and Duclert. The conclusion is drawn that poisons aid infection by an antiphagocytary action allowing the more rapid multiplication of the disease microbe without increasing the virulence

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of its virus.—On some new laws of pupillary contraction, by M. Ch. Henry.—Is the use of the Auer burner capable of causing partial poisoning? By M. N. Gréhaunt. The author quotes experimental results from which he draws the conclusion that the Auer burner in use does not cause poisoning by the trace of carbon monoxide produced.—On the transformation of "Parguriens" into anomorous crabs of the sub-family of the Lithodinae, by M. E. L. Bouvier.—On the venomous gland of the "Myriapodes Chilopodes," by M. O. Duboscq.—Branchiæ in *Physa lamellata*, by M. Paul Pelsener.—On the Hongkong plague, by M. Yersin. A specific bacillus is found in great numbers in the bubon, but not in the blood.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—The Country Month by Month, August; Owen and Boulger (Bliss).—Les Machines Thermiques: Dr. A. Witz (Paris, Gauthier-Villars).—Object-Lessons in Elementary Science: V. T. Murché, 3 Vols. (Macmillan).—Fur and Feather Series—The Grouse: Macpherson, Stuart-Wortley, and Saintsbury (Longmans).—41st Report of the Department of Science and Art (Eyre and Spottiswoode).—Directory, with Regulations for Establishing and Conducting Science and Art Schools and Classes (Eyre and Spottiswoode).—The Wild Garden: W. Robinson, 4th edition (Murray).—A Treatise on the Measurement of Electrical Resistance: W. A. Pice (Oxford, Clarendon Press).—The Animal as a Machine and a Prime Motor: R. H. Thurston (K. Paul).—The Collected Mathematical Papers of Henry John Stephen Smith: edited by Dr. J. W. L. Glaisher, 2 Vols. (Oxford, Clarendon Press).—Progress in Flying Machines: O. Chanute (S. Low).

PAMPHLETS.—Report on the Gohna Landslip, Garhwal: T. H. Helland.—Romanes Lecture, 1894—The Effect of External Influences upon Development: Dr. A. Weismann (Frowde).—Sketch and Check-List of the Flora of Kaffraria: T. R. Sim (Cape Town, "Argus").

SERIALS.—Bulletin of the New York Mathematical Society, Vol. 3, No. 10 (New York, Macmillan).—Geological Magazine, August (K. Paul).—Journal of the Chemical Society, July and August (Gurney and Jackson).—Geologische und Geographische Experimente: E. Reyer, 3 and 4 Hefte (Leipzig, Engelmann).—Science Progress, August (Scientific Press, Ltd.).—Scribner's Magazine, August (S. Low).—Fortnightly Review, August (Chapman).—Medical Magazine, August (Southwood).—Natural History of Plants: Kerner and Oliver, part 4 (Blackie).—Himmel und Erde, August (Berlin).—Seismological Journal of Japan, Vol. 3, 1894 (Yokohama).—Journal of the Anthropological Institute, August (K. Paul).—Società Reale di Napoli, Atti della Reale Accademia delle Scienze Fisiche e Matematiche Serie Seconda, Vol. 6 (Napoli).—Rendiconto dell'Accademia delle Scienze Fisiche e Matematiche, Serie 2<sup>a</sup>, Vol. 8 (Napoli).

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