

egg developed into a complete gastrula. From this it appeared that the exit of a portion of the contents of the egg had no influence on the development of the remaining part.—Prof. Zuntz criticised a recent paper by Filehne and Kiouka, in which they attempted to disprove his view that the increased respiratory frequency during muscular exertion is due to the action on the respiratory centre of some product formed during the activity of the muscles. He showed that their objections do not hold good, and that their experiments do not upset his conclusions.

November 29, 1895.—Prof. du Bois Reymond, President, in the chair.—Dr. René du Bois Reymond spoke on the opposition of the thumb, a point on which very scanty and insufficient information is contained in text-books of anatomy. He had studied in detail the theory of saddle-joints, and on the assumption that the movements take place about two axes at right angles to each other and passing through the point of contact of the two bones, he had arrived by construction at a mathematical formula corresponding to the ideal saddle-joint. This formula shows that a certain very limited amount of rotation is possible in this joint. He had further investigated, by the horopter and photographically, the actual movements of the thumb, the hand being firmly fixed, and gave the several phases of the movements which occur in the joint between the metacarpus and trapezium, and between the phalanx and the metacarpus during opposition.—Dr. Schultz demonstrated on the humerus of a duck the connection between the lungs and the bone cavities.

Physical Society, November 15, 1895.—Prof. von Bezold, President, in the chair.—Prof. Warburg gave a short account of experiments, by W. J. Wäggener, on the temperature of the flame of a Bunsen burner. The measurements were made with carefully-tested Le Chatellier's thermo-electric elements. The accuracy of the measurements was further tested in two directions. Firstly, with reference to the effect of high temperature on the E.M.F. of the element, it was found that prolonged heating makes the platino-iridium wire more markedly irregular than it does the platinum; hence the element was exposed to the flame for a short time only. Secondly, with reference to the disturbing effect of heat conduction, it was found with wires of 0.5, 0.2, 0.1 and 0.05 mm. diameter, that when they are coiled up so that they can be almost completely enveloped in the zone of active combustion the three thicker wires recorded the same temperature, whereas, when not so coiled up, the thicker wires gave a lower temperature. The thinnest wire gave the highest values in the outer edge of the flame and in the zone of active combustion, in the inner cone a lower value than that given by the wire of 0.1 mm. The highest temperature recorded was 1704° C. Taking the highest records of the above four wires, and representing them graphically, a curve was obtained which gave the value 1750° C. for a wire of zero thickness, a temperature not much below the melting point of platinum, 1780° C.—Prof. Thiesen spoke on the formulæ which make it possible to obtain a perfect image with a simple lens.

AMSTERDAM.

Royal Academy of Sciences, October 26, 1895.—Prof. Van Sande Bakhuyzen in the chair.—Prof. Martin read a paper on Tertiary fossils from the Philippines. Basing his arguments upon a collection of fossils formed many years ago by Semper in the Philippines, the author showed that in Luzon, in the upper course of the Rio Grande de Cagayan, there appear neo-miocene strata, which must be considered equivalent to the typical neo-miocene of Java. Similar strata are also found in Cebú; moreover, neo-tertiary (miocene or pliocene?) fossils have been brought away by Semper from the hills of Aringay in Luzon, and finally pliocene ones from the Rio Agusan, Mindanáó. In the Philippines there occur tertiary and newer deposits, which correspond to the newer sediments in Java, both as regards the age and the petrographic structure and the fossil fauna of the said strata.—Mr. Jan de Vries presented a paper on a class of complete functions. Let W be a function of γ of the n th degree, then the general formula is determined for a function that satisfies the equation $W_n - \gamma W_{n-1} + W_{n-2} = 0$.—Prof. Kamerlingh Onnes communicated Dr. Zeeman's measurements on absorption of electrical vibrations in electrolytes, undertaken at the suggestion of Prof. Cohn of Strassburg, and carried out in the Leyden laboratory. The (as yet) preliminary results are: (1) the energy of the electric vibrations in pervading an electrolyte diminishes in the logarithmic ratio; (2) if the wave-length is 6.5 m., the energy has decreased to one-third of its original value when the wave has passed through 6.5 c.m. of a solution

of common salt, the resistance of which is $3200 \cdot 10^{-10}$ that of mercury.—Prof. Lorentz presented, on behalf of Mr. A. Smits, a paper, entitled "A Description of the Micromanometer." By means of the instrument described, a difference of pressure equal to $\frac{1}{15000}$ m.m. of water or $\frac{1}{200000}$ m.m. of mercury, may, if all precautions possible are taken, be measured under the most favourable conditions.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Gesammelte Abhandlungen über Entwickelungsmechanik der Organismen: Prof. W. Roux, Erster und Zweiter Bands (Leipzig, Engelmann).—Die Mikroskopische Thierwelt des Süsswassers: Dr. F. Blochmann. Abthg. 1. Protozoa (Hamburg, Gräfe).—Fauna der Gaskohle und der Kalksteine der Permformation Böhmens: Dr. A. Fritsch, Dritter Band (Prag, Riviác).—Die Haustiere und Ihre Beziehungen zur Wirtschaft des Menschen: E. Hahn (Leipzig, Duncker).—The Story of the Solar System: G. F. Chambers (Newnes).—A Manual of Inorganic Chemistry: Dr. T. E. Thorpe, 2 Vols., new edition (Collins).—Die Spectralanalyse: Dr. J. Landauer (Braunschweig, Vieweg).—In Haunts of Wild Game: F. V. Kirby (Blackwood).—Dynamo-Electric Machinery: Prof. S. P. Thompson, 5th edition (Spon).

PAMPHLETS.—Dynamo Attendants and their Dynamos: A. H. Gibbins, 2nd edition (Rentell).—Submarine Telegraphy, &c.: J. Bell and S. Wilson (Electricity Office).—Pharmaceutical Society Museum Report for the Year 1893-4 (Bloomsbury Square).

SERIALS.—Proceedings of the Society for Psychical Research, December (Paul).—Popular Science Monthly, December (Paul).—American Naturalist, December (Philadelphia).—History of Mankind: F. Ratzel, Part 4 (Macmillan).—Bulletin of the Illinois State Laboratory of Natural History, Urbana, Ill., Vol. 4 (Springfield, Ill.).—Good Words, January (Isbister).—Sunday Magazine, January (Isbister).—English Illustrated Magazine, January (98 Strand).—Longman's Magazine, January (Longmans).—Economic Journal, December (Macmillan).—Astrophysical Journal, December (Wesley).—Contemporary Review, January (Isbister).—Century Magazine, January (Macmillan).—Natural Science, January (Rait).—Journal of the Chemical Society, December (Gurney).—Zeitschrift für Physikalische Chemie, xviii. Band, 4. Heft (Leipzig, Engelmann).—Fortnightly Review, January (Chapman).—The Humanitarian, January (Hutchinson).—Phonographic Quarterly Review, January (Pitman).—Journal of the Royal Microscopical Society, December (Williams).

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