

developed in alternation, an examination of the tubes showing them to contain developed eggs alternating with others in an undeveloped condition and of which some very curious instances were seen in the specimens before the meeting.—Mr. Crisp called attention to some photomicrographs of animalcules sent by Mr. J. B. Robinson; and to photographs of snow-crystals sent by Mr. Waters, from Davos Platz; also to a specimen of one of the earliest forms of the compound microscope by Campani, of Rome, made some time prior to 1665.—A new form of adjustable nose-piece, by Dr. Zeiss, was exhibited, in which the objective was made to slide in a groove in an inclined plane which insured its not scraping along the surface of the cover-glass when being changed.—A paper by Mr. P. H. Gosse, on twelve new species of Rotifera, was read.

LIVERPOOL.

Biological Society, March 12.—Prof. Herdman, Vice-President, in the chair.—A paper was read by Mr. I. C. Thompson on some new and little known Copepoda of Liverpool Bay. The paper included the description of several new points in the anatomy of several species new to British seas.—Dr. Collins communicated some observations on anatomical abnormalities.—Mr. Harvey Gibson (Secretary) read the first of a series of notes on floral morphology, dealing with the angle of insertion of the petals on the thalamus in the *Polypetalae* and the form of the flower as a whole in the *Gamopetalae*, in their relation to the protection of the essential organs.

April 23.—Prof. Herdman, Vice-President, in the chair.—The Secretary (Mr. Harvey Gibson) read a preliminary paper on a research into the nature and function of the so-called "hepatic cells" of *Lumbricus terrestris*, by himself and Mr. A. J. Chalmers. The results so far tend to show that the so-called "cells" are rather digestive glands and not "vasifactive tissue" as suggested by some biologists.—Mr. G. F. Moore read a note on a new tank for the maceration of osteological specimens.—Dr. Herdman read a preliminary paper by Miss F. Palethorpe and Miss C. Wilson on a collection of Ascidians from Australian seas, sent by the Sydney Museum authorities to the Fisheries Exhibition, and containing a number of new species.—Dr. Bruce exhibited a collection of surface animals from Maltese seas, and Mr. R. McMillan exhibited a specimen of a pile from the works of the Canadian Pacific Railway, destroyed by the borings of *Teredo*.—Mr. G. H. Morton exhibited the spicules of sponges that he recently found in several places in the chert-beds of the Cefn-y-Fedw sandstone of Denbighshire and Flintshire, on the horizon of the millstone grit. Mr. Morton's observations have been confirmed by Dr. Hinde. The spicules probably belong to a genus of *Hyalonema*, and have not been recorded previously from North Wales.

BERLIN.

Physiological Society, April 15.—Prof. Du Bois Reymond, President, in the chair.—Dr. Prause spoke on the degeneration of nerves resulting from sectional injuries. According to Waller, when a nerve is cut through, the peripheral parts degenerate, whereas the central remain intact. The result of a thorough investigation of the nerves in cases of amputation, which the speaker carried on some years ago in conjunction with Dr. Friedländer, has however shown that the central parts of the divided nerves had degenerated even right up to the spinal cord. Quite recently, Dr. Prause has repeatedly examined the nerves in cases where, owing to gangrene of the foot, the leg had been amputated close below the knee. Here the degeneration of the nerves extended up to, and probably beyond, the surface of amputation, having in such cases started from the gangrenous parts, and progressed centripetally. Side by side, however, with the larger number of degenerated fibres a few normal fibres were also found. From experiments on animals in which nerves of very different kinds, both sensory and mixed, were cut through, it appeared that in the peripheral parts by far the larger number of the fibres degenerate, while at the same time a not inconsiderable number remain unaltered; similarly degenerated and normal fibres were found in the central part of the nerve, only in this case the relative number of each kind is in an inverse proportion to that in which they are found in the peripheral part. It follows from the above that, starting from the point of section of a nerve, one set of fibres degenerates towards the periphery, the other towards the centre. It seemed right to assume that

those fibres which degenerate towards the periphery have their trophic centre in the spinal cord or brain as the case may be, while those which degenerate centripetally are dependent for their nutrition on some centre at the periphery, such as presumably the tactile corpuscles of Meissner. Were this not so, Waller's law would again hold good, since only those parts of a nerve degenerate which are cut off from their trophic centre: only sensory nerves degenerate centripetally.—Dr. Grunmach communicated the results of some experiments on the relation between the curve of distension of elastic tubes and the rate of the pulse-wave in the same. These experiments were carried out with various gutta-percha tubes and with the aorta of horses; the internal pressure being varied from 0 to 200 mm. of mercury, the alteration of volume of the tubes and the rate of transmission of the pulse-wave were both measured. The results showed that the rate of the pulse-wave is most markedly dependent upon the distension-curve or coefficient of elasticity of the tube; this coefficient is, however, very variable with different tubes. The behaviour of a horse's aorta approximated to that of an india-rubber tube wrapped round with linen. The thickness of wall of the tubes and the size of their lumen was very slightly, if at all, altered by the varying pressure, and their influence upon the relationship of pressure and rate of pulse-wave was quite subordinate.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

La Cytodièrèse chez les Animaux: J. B. Carnoy (Peeters, Louvain).—Report on the Mining Industries of New Zealand (Wellington).—Gold Fields of Victoria; Reports of the Mining Registrars for the Quarter ended December 31, 1886 (Ferres, Melbourne).—Elements of Dynamics, part 1, book iv.: W. K. Clifford (Macmillan).—Lessons in Elementary Practical Physics, vol. ii.: B. Stewart and W. W. H. Gee (Macmillan).—Pioneering in New Guinea: James Chalmers (R.T.S.).—Eastern Geography: Prof. A. H. Keane (Stanford).—Systematic Lists of the Flora, Fauna, Palæontology, and Archæology of the North of Ireland, vol. i. (Belfast Naturalists' Field Club).—Proceedings of the Linnean Society of New South Wales, and series, vol. i., part iv. (Trübner).—Challenger Reports—Zoology, vol. xix. (Eyre and Spottiswoode).—Beobachtungen der Russischen Polarstation auf Nowaja Semlja, ii. Theil.; Meteorologische Beobachtungen: K. Andrejeff. —Beobachtungen der Russischen Polarstation an der Lenainündung, ii. Theil.; Meteorologische Beobachtungen, i. Lief.; Beobachtungen v. Jahre 1882–83: A. Eigner.—A Classification of Animals: E. T. Newton (Philip).—Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie, Acher Band, iv. Heft (Leipzig).—Journal of the Society of Telegraph-Engineers and Electricians, vol. xvi. No. 66 (Spon).—Journal of the Royal Agricultural Society of England, April (Murray).—Beiblätter zu den Annalen der Physik und Chemie, No. 4, 1887 (Leipzig).

CONTENTS.

	PAGE
The Ainos	25
The Zoological Results of the "Challenger" Expedition	26
The Elements of Economics	27
Our Book Shelf:—	
Mills: "Outlines of Lectures on Physiology"	28
Taylor: "Chemistry for Beginners"	28
Letters to the Editor:—	
Thought without Words.—Francis Galton, F.R.S.	28
Tabasheer mentioned in Older Botanical Works.—	
Dr. Ernst Huth	29
A Brilliant Meteor.—Arthur Nicols; Maures	
Hornor; Isabel Fry	30
Residual Affinity.—Wm. Durham; Prof. H. E.	
Armstrong, F.R.S.	30
The Spherical Integrator.—Fredk. Smith	31
The Henry Draper Memorial. By Prof. Edward C.	
Pickering. (Illustrated)	31
Science and Gunnery, I.	34
The Temperature of the Clyde Sea-Area, I. By Dr.	
Hugh Robert Mill. (Illustrated)	37
Dr. Junker. (With a Map)	39
Notes	41
Our Astronomical Column:—	
The Melbourne Observatory	43
The Transit of Venus in 1882	44
Astronomical Phenomena for the Week 1887	
May 15–21	44
Remarkable Hailstones. (Illustrated)	44
Scientific Serials	45
Societies and Academies	45
Books, Pamphlets, and Serials Received	48