of a swim-bladder is in exactly the same condition as the diver, for it also is in unstable equilibrium in the water. The fish can only remain at rest in the water by continually readjusting its "hydrosphere" by means of slight contractions of the bladder, and thus balancing itself in a position of rest. When the fish rises or sinks, or moves horizontally, the alterations of the swim-bladder and the changes in specific gravity which are the result of this, play an important part, inasmuch as they strike a continual balance between the forces tending to raise and depress the fish's body. The laws according to which the swim-bladder plays its part in a fish are in general the same as those which hold good for the Cartesian diver, and these laws are now considerably cleared up by the speaker's researches.

DIARY OF SOCIETIES.

LONDON.

THURSDAY, FEBRUARY 13.

ROYAL SOCIETY, at 4.30.—The Liquation of Gold and Platinum Alloys: E. Matthey.—On the Unit of Length of a Standard Scale by Sir George Shuckburgh: General Sir J. T. Walker, R.E., F.R.S.

MATHEMATICAL SOCIETY, at 8.—Concerning Semi-invariants: S. Roberts, F.R.S.—Ether-Squirts: Prof. K. Pearson.—On Class-Invariants: Prof. G. B. Mathews.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Theory of Armature Reaction in Dynamos and Motors: Jas. Swinburne.

ROYAL INSTITUTION, at 3.—The Three Stages of Shakspeare's Art: Rev. Canon Ainger.

FRIDAY, FEBRUARY 14.

ROYAL ASTRONOMICAL SOCIETY, at 3.—Anniversary Meeting.

AMATEUR SCIENTIFIC SOCIETY, at 7.30.—Annual General Meeting.—Election of Council, &c.—The Old Red Sandstone of North-East Scotland: J. W. Evans.

ROYAL INSTITUTION, at 9.—Problems in the Physics of an Electric Lamp; Prof. J. A. Fleming.

SATURDAY, FEBRUARY 15.

ROYAL INSTITUTION, at 3.—Electricity and Magnetism: Right Hon. Lord Rayleigh, F.R.S.

SUNDAY, FEBRUARY 16.

SUNDAY LECTURE SOCIETY, at 4.—Norway; its Scenery and its People (with Oxyhydrogen Lantern Illustrations): H. L. Brækstad.

MONDAY, FEBRUARY 17.

SOCIETY OF ARTS, at 8.—Stereotyping: Thomas Bolas.

ARISTOTELIAN SOCIETY, at 8.—The Distinction between Society and the State: J. S. Mann.

VICTORIA INSTITUTE, at 8.—Iceland (concluding paper): Rev. Dr. Walker.

TUESDAY, FEBRUARY 18.

SOCIETY OF ARTS, at 8.—Ocean Penny Postage and Cheap Telegraph Communication between England and all Parts of the Empire and America: J. Henniker Heaton, M.P.

ZOOLOGICAL SOCIETY, at 8.30.—First Report on Additions to the Lizard Collection in the British Museum (Natural History): G. A. Boulenger.—On a Guinea-fowl from Zambesi, allied to Numida cristata: P. L. Sclater, F.R.S.—Notes on the Genus Cyon: Dr. Mivart, F.R.S.

ROYAL STATISTICAL SOCIETY, at 7.45.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Shanghai Water-Works: J. W. Hart.—The Tytam Water-Works, Hong-Kong: Jas. Orange.—The Construction of the Yokohama Water-Works: J. H. T Turner.

ROYAL INSTITUTION, at 3.—The Post-Darwinian Period: Prof. G. J. Romanes, F.R.S.

WEDNESDAY, FEBRUARY 19.

SOCIETY OF ARTS, at 8.—The Organization of Secondary and Technical Education in London: Prof. Silvanus P. Thompson.

ROYAL METEOROLOGICAL SOCIETY, at 7.—Observations on the Motion of Dust, as illustrative of the Circulation of the Atmosphere, and of the Development of certain Cloud Forms: Hon. Ralph Abercromby.—Cloud Nomenclature (illustrated by Lantern Slides): Captain D. Wilson-Barker.—An Optical Feature of the Lightning Flash (illustrated by Lantern Slides: Eric S. Bruce.

UNIVERSITY COLLEGE CHEMICAL AND PHYSICAL SOCIETY, at 5.—The Chemical History of a Crystalline Schist: E. Greenly.

THURSDAY, FEBRUARY 20.

ROYAL SOCIETY, at 4.30.

LINNEAN SOCIETY, at 8.—On the Fruit and Seed of Juglandia; on the Shape of the Oak-leaf; and on the Leaves of Viburnum; Sir John Lubbock, Bart., P.C., M.P., F.R.S.

CHEMICAL SOCIETY, at 8.—The Behaviour of the most Stable Oxides at High Temperatures: G. H. Bailey and W. B. Hopkins.—The Influence of Different Oxides on the Decomposition of Potassium Chlorate: G. J. Fowler and J. Grant.

ZOOLOGICAL SOCIETY, at 4.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.

ROYAL INSTITUTION, at 3.—The Three Stages of Shakspeare's Art: Rev. Canon Ainger.

FRIDAY, FEBRUARY 21.

GEOLOGICAL SOCIETY, at 3.—Annual General Meeting.

PHYSICAL SOCIETY, at 5.—On a Carbon Deposit in a Blake Telephone Transmitter: F. B. Hawes.—The Geometrical Construction of Direct Reading Scales for Reflecting Instruments: A. P. Trotter.—A Parallel Motion Suitable for Recording-Instruments: A. P. Trotter.—On Bertrand's Refractometer: Prof. S. P. Thompson.

INSTITUTION OF CIVIL ENGINEERS, at 7.30.—Some Types of American Locomotives, and their Construction: C. N. Goodall.

ROYAL INSTITUTION, at 9.—Magnetic Phenomena: Shelford Bidwell, F.R.S.

SATURDAY, FEBRUARY 22.

ROYAL BOTANIC SOCIETY, at 3.45.

ROYAL INSTITUTION. at 3.—Electricity and Magnetism: Right Hon. Lord Rayleigh, F.R.S.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

A Dictionary of Applied Chemistry, vol. 1: Prof. T. E. Thorpe (Longmans).—Prodromus Faunæ Mediterraneæ, vol. 2, Part 1: J. V. Carus (Stuttgart, E. Koch).—Reports from the Laboratory of the Royal College of Physicians, Edinburgh, vol. 2 (Pentland) —Catalogue of the Fossil Reptilia and Amphibia in the British Museum (Natural History). Part 3: R. Lydekker (London).—Elements of Logic: E. E. C. Jones (Edinburgh, Clark).—A Catalogue of British Fossil Vertebrata: A. S. Woodward and C. D. Sherborn (Dulau) —The Elements of Astronomy: Prof. C. A. Young (Arnold). —American Spiders and their Spinning Work, vol. 1: Dr. H. C. McCook (Author, Philadelphia).—The Flowering Plant: J. R. A. Davis (Griffin).—The *Electrician* Electrical Trades' Directory and Handbook for 1890 (*Electrician* Office).—The Photographers' Diary and Desk Book, 1890 (*Camera* Office).—Untersuchungen über die Bewegungsverhältnisse in dem Dreifachen Sternsysteme Scorpii: B. Schorr (München, Straub) —A Modern University: Hy. Dyer (Perth, Cowan).—On a University Faculty of Engineering: Hy. Dyer (Glasgow, Munro).—Types of Metamorphosis in the Development of the Crustacea: I. C. Thompson (Liverpool).—Magnetism and Earth Structure: Dr. E. Naumann (Trübner).—Journal of the Chemical Society, February (Gurney and Jackson).—Brain, No. 48 (Macmillan).—Journal of the Institute of Actuaries, January (Layton).—Monograph of the British Cicadæ, Part 1: G. B. Buckton (Macmillan).—Quarterly Journal of the Geological Society, No. 181 (Longmans).—Bulletin of the U.S. Geological Survey, No. 54 (Washington).

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