BERLIN

Physiological Society, February 11.—Prof. du Bois-Reymond in the chair.—Dr. König spoke on acuteness of hearing and its estimation by means of tuning-forks, the sound of which gradually died away. He laid stress on the distinction between acuteness of seeing and acuteness of hearing, the latter of which was represented by the time from the beginning of hearing a tuning-fork struck till no sound from it was any longer perceived. It was now customary to say when one person could hear a certain tuning-fork for 100 seconds after it had been struck, and another could hear the same tuning-fork, struck at the same intensity, for only 50 seconds, that the second had only half the acuteness of hearing possessed by the first. In point of fact, such a statement was not accurate, seeing that the amplitudes of a vibrating tuning-fork declined in geometrical progression. It was only in very special circumstances that the specification of the amount of acuteness of hearing, as commonly employed, could be correct. As an empirical method of measurement according to a conventional standard, the expressions a half, a quarter, or whatever be the measure, of acuteness of hearing would be permissible, if in such cases the same tuning-fork were always applied, and it was always struck with the same intensity. To come to an understanding on this point was the business of practical aurists. During the animated discussion which followed this address, Prof. du Bois-Reymond produced an apparatus in which an equal amplitude of vibration in a tuning-fork was obtained by placing between the prongs of the fork a revolving elliptical disk of such dimensions that the small axis left the prongs in their natural position, while the large axis forced them apart from one another. The large axis having been put in, and the disk rapidly turned through 90°, the fork commenced to vibrate, and with each impulse the amplitude was the same.—Prof. Zuntz reported the results of the experiments, partly instituted in conjunction with Herr Potthast, respecting the alimentary values of various albuminous substances. As a most important principle in conducting these experiments, the speaker laid down the maxim that the albuminous substance to be examined should not be administered in too large quantities. It was only with very small doses that the alimentary value of the different albuminous substances beside the same nourishment free of nitrogen could be determined. The dog was used for the purpose of the experiment. The proteine substances compared were: the albumen of lentils, that of lupines, that of gluten, and caseine. In the normal feeding, which regularly alternated with that of the albumen to be tested, the proteine of nourishment was imparted in the form of flesh-meal. The result of the long and laborious experiments was that the alimentary value of the albumen of lentils and that of gluten were each found to be equivalent to that of flesh-meal. That is to say, when to the food (which, apart from the additions to be specified, was the same in all the different cases) there were added equal quantities of albuminous nitrogen—in one case in the form of flesh-meal, in another in the form of gluten, and in a third in the form of lentils—in each such case a quantity of nitrogen was developed, and therefore a quantity of albumen withdrawn from the nourishment, which was equal in all three. The albumen of lupines had a lower alimentary value than the albumen of flesh-meal, seeing that from the lupines more albumen was decomposed than from the flesh-meal. Finally, from caseine, less albumen was decomposed, and therefore more was absorbed by the body and utilised, than in the case of any of the other albuminous classes. By means of this investigation two facts of general importance were established: first, it was ascertained that by changing the species of albumen employed by way of nourishment, a better utilisation of the nutritive albumen was obtained, *i.e.* less albumen was decomposed, than if one and the same species of albumen were given for a long period; second, the paradoxical observation was made that during lactation, when the animal made use of a large quantity of albumen for the formation of milk, more of the albumen administered in the food passed away in waste than would have been the case in the same circumstances at a time of non-lactation. The following explanation of these phenomena was given by the speaker. During lactation the animal used a certain quantity of albumen for the milk. The albumen of milk, as was known, was caseine. This caseine was not, however, administered in the food, but had first to be produced from the nutritive albumen (the various species of albumen being chemically different. Now, from the nutritive albumen only certain groups of molecules could be utilised for the formation of caseine. Far more albumen must therefore be decomposed than corresponded with the quantity of nitrogen in the caseine. Hence, therefore, the greater decomposition and the less utilisation of the albumen of the nourishment. Nor was the albumen which the animal needed for incorporation with the body offered to it in the albumen of the nourishment, but the albumen taken by the body was built up from the constituents of the albumen of the nourishment. If only one kind of albumen was given to the animal, it required to decompose a large quantity in order to obtain sufficient constituents for the albumen appropriated by the body. If, on the other hand, different sorts of albumen were given in the food, then the animal decomposed on the whole a less percentage, seeing that in the differently composed albuminous substances it sooner found the different molecular groups which it needed for the building-up of the albumen of the body.

BOOKS, PAMPHLETS, and SERIALS RECEIVED

Records of the Geological Society of India, vol. xx.—The A B C of Photography, 22nd edition (London Stereoscopic Company).—The Perfect Way, or the Finding of Christ, 2nd edition: Kingsford and Maitland (Field and Tuer).—English Tobacco Culture: E. J. Beale (Marlborough).—Through the Fields with Linnæus, 2 vols.: F. Caddy (Longmans).—Report of the Meteorological Council of the Royal Society for the year ending March 31, 1886 (Eyre and Spottiswoode).—Quarterly Weather Report, part 2, April-June, 1878 (Eyre and Spottiswoode).—Monthly Weather Report, September 1886 (Eyre and Spottiswoode).—Report of the Third Meeting of the International Meteorological Committee, held at Paris, September 1885 (Eyre and Spottiswoode).—Scalelia Chemica: a Series of Aids for Beginners in Chemistry; Part 1, Analysis of Simple Salts: H. Adrian (Lewis).—Genesis of the Elements: W. Crookes.—The House in Relation to Public Health: J. B. Russell (Anderson, Glasgow).—Descriptive List of Anthropometric Apparatus (Cambridge Scientific Instrument Company).—Annalen der Physik und Chemie, No. 3, 1887 (Barth, Leipzig).—Journal of Physiology, vol. viii. No. 1 (Cambridge).

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