cesses, whereby a certain quantity of heat is lost to the body. This physiological output of carbohydrate is in the male sex most marked during the period of growth—that is, between the ages of 14 and 19. In women there is no corresponding increase, but small quantities may appear in the urine before and after menstruation, while Iwanoff and others have shown that glycosuria is common in pregnant and parturient women. Now the amount of sugar normally excreted is equal in men and women, but more significant in the latter owing to the lesser activity of their metabolic processes. For the perfect ripening of the ovum it is necessary that oxidation shall be perfect—that is, that no sugar shall be left unburnt. Where there is a remainder of unburnt sugar the ovum stands a chance of being less ripe, and less well nourished. Hence the properties of its protoplasm are less well developed, and by the theory of crossed inheritance it is more likely to produce a female child. On the other hand, when the urine is free from sugar the ovum can attain perfect development, and give rise to male offspring. It is upon this cardinal principle that Professor Schenck's theory is based. He holds that a prolonged course of appropriate nourishment both before and after fertilization will tend to the conception of male children only.

The next question is of the means to be adopted to ensure this end. If a male child is desired, and the maternal urine contains no sugar, but abundance of reducing substances (particularly the lævo-rotatory glycuronic acid), he allows impregnation forthwith. If, on the other hand, sugar is present it must be removed, and the reducing substances increased before fecundation may take place. It is found that the urine of a woman pregnant with a boy contains more reducing substances than that of one with a girl. We need not enter into the details of the diet recommended, beyond saying that it contains much proteid, which seems to be required by a male embryo.

Finally Professor Schenck gives what may be called his clinical results. He quotes numerous cases to show that the bearing of female children is associated with glycosuria. In such instances he recommends a diet comprising plenty of proteid and fat, and as little carbohydrate as can be tolerated; this must be taken for two or three months before and three months after impregnation. He gives one example in which six boys were born in succession under this treatment, and a girl immediately it was relaxed; and others in which boys were born after repeated births of girls before the treatment. In all, out of seven recorded cases, six were successful. He concludes that the nutrition of the mother plays a most important part in the determination of sex, and that in countries where much flesh is consumed there is a marked preponderance of male children. This can be imitated artificially, but it is far more important to ensure the completeness of oxidation processes in the body. As long as the combustion of the food is perfect, and the urine is totally free from sugar, the exact amount of meat consumed is of secondary importance. The birth of male children can thus, in certain cases, be predetermined, but the voluntary production of girls is a problem as yet unsolved.

CONVERSAZIONE OF THE ROYAL SOCIETY.

The first of the annual *conversaziones* of the Royal Society was held on May 11th, in the Society's rooms at Burlington-house, the guests being received by the President, Lord Lister.

The London *Times* states that there was the usual exhibition of objects, apparatus, processes, and experiments illustrative of some of the most recent advances in scien-

tific research. The exhibits seemed on the whole more abundant than usual, while an unusually large proportion were of a character that could only be understood by specialists, or at least by actual inspection under expert guidance. As might have been expected, the results obtained by the various parties who went to India to observe the recent eclipse of the sun were particularly prominent, and attracted considerable attention. These exhibits were lent by the Permanent Eclipse Committee and conveyed the impression that substantial results had been achieved by the parties which went to India. From the Astronomer-Royal there were six photographs of the corona, showing the results of various exposures. Sir Norman Lockyer showed several photographs illustrating the eclipse and the expedition to Viziadrug. Some of these were photographs of the observing station, its party of observers, and some of the instruments employed. Another series illustrated some of the results obtained, including enlargements comparing the spectrum of the chromosphere taken at the beginning of totality with that taken eight seconds after the end of totality. Other eclipse photographs were shown by Captain Hills, Mr. H. F. Newall, the Astronomer-Royal for Scotland, and the Eclipse Committee of the British Astronomical Association, which had parties at Buxar and Tahni.

Professor Oliver Lodge exhibited some results of his experiments in space telegraphy, in which, under the requisite conditions, the most remarkable sympathy was manifested between two condenser circuits placed at a distance from each other; with enough copper in each circuit there is no assignable limit of distance. Professor Lodge, in conjunction with Dr. Alexander Muirhead, also showed experiments in Hertz-wave space telegraphy between a couple of signalling stations, one at the far end of the library, the other in the Secretary's room. These two exhibits, especially the former, were perhaps the most suggestive and attractive in the rooms. The former especially is almost uncanny in its mystery, and both are capable of being turned to important practical uses—communication, say, with outlying islands and lightships. Professor H. Callendar showed a new electrical recording apparatus, which has been in use for some time at McGill College, Montreal, and which may be applied to a great variety of scientific and practical purposes. Mr. Orme Bastian's electric current meter seemed to suggest the possibility of really delicate and accurate measurement. Interesting also were Mr. K. J. Tennant's photographs of electric discharges.

Of special interest were the charts, sections and specimens, illustrating some of the results of the investigations carried on in the Atoll of Funafuti, South Pacific, shown by Sir W. J. L. Wharton and Professor Judd on behalf of the Coral Reef Committee of the Royal Society. It will be remembered that the expedition in H. M. S. Penguin in 1896 was not very successful, while that of 1897 under Professor David succeeded in boring to a depth of 698 feet. This year a third expedition is going out and hopes to reach a greater depth.

As usual at recent exhibitions the Röntgen rays held a prominent place. Mr. Mackenzie Davidson showed an apparatus very ingeniously arranged to localize exactly any particular object, such as a bullet. Mr. Campbell Swinton showed a Röntgen ray camera with a pin-hold instead of a lens, also very powerful cathode-ray lamps and some experiments on the circulation of the residual gaseous matter in Crookes tubes. Mr. Wimshurst exhibited an improved apparatus for holding and for the excitement of Röntgen-ray tubes. One beautiful demonstration was that of Mr. C. T. R. Wil-

son, showing the production of cloud by the action of ultra-violet light, suggesting an explanation of the blue in the sky. Professor Hele-Shaw's delicate experiments on the flow of water deserve mention. They are of practical moment also, as are Mr. T. Andrew's micrographic illustrations of deterioration in steel rails, indicating the microscopic structure and composition of the most enduring and safest rails. Professor Roberts-Austen showed a complete installation of apparatus for the microphotography of metals designed for Sir Andrew Noble for use at Elswick Works, also apparatus to illustrate M. Daniel Berthelot's interference method of measuring high temperatures. It consists of an optical interference apparatus in which a beam of light is divided by a thinly-silvered mirror and passed through two tubes. In one of these tubes air is rarefied by heat and in the other by exhaustion, and when the rarefaction is equal in both tubes colored interference bands appear. As the degree of exhaustion in one tube can be measured by a manometer the unknown temperature is readily found. Mr. Horace Seymour, Deputy-Master of the Mint, exhibited a case of bronze Jubilee medals beautifully colored by a method, borrowed from the Japanese, which marks a new departure in medal work in this country. Mr. J. E. Stead sent some remarkable specimens of iron and steel, showing crystalline structure developed at 750°C., the temperature at which the magnetic change in iron takes place. They proved that their peculiar polygonal structure could be produced without the presence of a cementing material between the joints, and showed clearly the existence of allotropic forms of iron. Professor Ewing exhibited a magnetic balance for permeability tests of iron. It is a new apparatus designed to afford an easy means of judging of the magnetic quality of iron or steel, with special reference to its suitability for use in dynamo magnets.

An attractive exhibit was that of Mr. Joseph Goold's experiments in relation to resonance, which were harmonics, sub-harmonics, and compound harmonics illustrated by the action of forced vibrations in paper discs, thin metal plates, etc.; also vibration-tops, which spin by contact with vibrating surfaces, and vibrating dust-heaps bursting into whirling nebulæ and condensing into gravitating systems of circular mounds.

Those who attended the meeting of the British Association last year were interested in Professor Poulton's Canadian insects and Dr. Armstrong's colored photographs of the Yellowstone Park. The series of models illustrating the composition of vertebræ in the various groups of vertebrata, exhibited by Dr. Gadow and Mr. W. F. Blandford, were highly instructive. The 'naturographs' shown by Mr. R. B. Roxby were beautiful specimens of Dr. Selle's process of photography in natural colors.

Every one was naturally interested in the exhibit by Professor Herdman and Professor Boyce of healthy and unhealthy oysters, showing the causes of coloration and the connection between oysters and disease. The exhibit by the Marine Biological Association of the adaptation of marine animals to their environment, illustrated by living examples of the higher crustacea, was highly instructive and interested many. There were several other interesting biological exhibits and demonstrations. It is impossible even to mention many other exhibits, some of them of at least equal scientific importance to those referred to.

During the evening, besides Sir Norman Lockyer's eclipse exhibit, shown by means of the electric lantern, Dr. Sorby showed some cleverly mounted slides illustrating marine animals.