ABSTRACT OF PROCEEDINGS, OCTOBER, 1905.

A meeting of the Royal Society was held at the Museum on Tuesday, the 10th inst. His Excellency the Governor (Sir Gerald Strickland, K.C.M.G.) presided, and among those present were Lady Edeline Strickland, Miss Drummond, Capt. Griffith, A.D.C., Sir Elliott Lewis, K.C.M.G., Mr. A. G. Webster (chairman of the council), Dr. Elkington, Messrs. A. O. Green, Lomas Smith, and a number of ladies and gentlemen.

The first business was the balloting for a new member, Dr. E. M. Owens being unanimously elected.

Two Noteworthy Exhibits.

The secretary (Mr. Alex. Morton) apologised for the absence of Messrs. Russell Young, Bernard Shaw, I.S.O., Thos. Stephens, M.A., and Professor Neil-Smith, M.A., and drew attention to two very noteworthy exhibits. One was a fine specimen of a rainbow trout, weighing 4½lb., which had been placed in Lake Dulverton, an inch in length on November 21, 1903. The rainbow trout (Salmo iredeus) was especially abundant in the mountain streams of California. Its size depended upon its surroundings, the volume and temperature of the water, and the amount of food it contained. In some of the cold mountain streams of Colorado their average weight was not more than 6oz. or 8oz., but in lakes in the same State, where the water was moderately warm in summer, they reached 12lb. or 13lb. The other exhibit was a specimen of wolframite (tungstate of iron), which had recently been found at Ben Lomond, and would probably prove to be one of the most valuable minerals ever discovered in Tasmania. This mineral had recently become of considerable commercial importance for the production of tungstic acid, which was principally used to give greater hardness to steel and aluminium. Russia was about to spend twenty million sterling to rebuild her ships, and Krupp had sent out an expert to search for this valuable mineral, which was now largely used for the manufacture of war material.

The Activity of Science.

An important circular was read from Sir Norman Lockyer, president of the organising committee, stating that an association was being organised under the name of the British Science Guild, with the object of insisting upon the importance of applying scientific methods to every branch of the affairs of the nation. The accompanying memorandum stated that it had been a frequent subject of comment that the English people did not manifest that interest and belief in the powers of science, which were noticeable among the peoples of the Continent or of America. In spite of the efforts of many years, the scientific spirit was still too rare, and was often lacking in some of those who were responsible for the proper conduct of many of the nation's activities. It was proposed, therefore, to establish a British science guild, which would be entirely disconnected from party politics—(1) To bring together all those throughout the Empire interested in science and scientific methods, in order, by joint action, to convince the people, by means of publications and meetings, of the necessity of applying the methods of science to all branches of human endeavour, and thus to further the progress and increase the welfare of the Empire; (2) to bring before the Government the scientific aspects of all matters affecting the national welfare; (3) to promote and extend the application of scientific principles to industrial and general purposes; and (4) to promote scientific education by encouraging the support of universities and other institutions where the bounds of science were extended, or where new applications of science were devised.

Another important circular was a preliminary announcement of an Australian Journal of Science which it was proposed to issue monthly, edited by Professor Liversidge, M.A., LL.D., F.R.S., of the Sydney University, to commence next January.

A Difficult Subject.

The Chairman then called for a discussion on the Philological paper read at the last meeting by Professor Hermann Ritz, of the Tasmanian University.

Mr. R. M. Johnston, Government Statistician, said that the subject was a very difficult one to follow, too difficult, indeed, for anyone to criticise who had not made it a special study. They felt very much indebted to the professor for having given them the results of his researches. While they might not, perhaps, follow him in all his conclusions, they appreciated the value of his labours. He specially agreed with the professor on one point, and that was that the need for expression must have preceded the expression itself.

A New Range Finder.

Mr. H. C. Kingsmill, M.A., then read a short paper, entitled "A New Range Finder." Although range-finding was commonly regarded as a military art,

there were occasions when it was a useful adjunct to the work of the civilian explorer or surveyor. The requisites for the new method were a box sextant, a steel tape or surveyor's chain, and a couple of ranging rods with some arrows. An assistant to the surveyor was also required, whose work would be of a very simple nature. After illustrating his subject by diagrams, Mr. Kingsmill said the range could be obtained without calculation by means of a table of reciprocals, such as was found in Molesworth's "Book for Engineers." The instruments used were those with which a surveyor was supposed to be familiar, and they were easily carried. Though no trial had yet been made with a long range, a satisfactory result had been obtained at short ranges. For a rapid geological or topographical sketch a sufficient degree of accuracy should be attainable.

The Chairman asked if the new range-finder, which depended on two points of observation, could compete for practical work with instruments which required only one point. There was nothing so useful as the theodolite, especially when combined with the calimeter, and he would like to know whether it would not be more rapid and reliable, although perhaps more expensive, and a more satisfactory instrument for obtaining ranges than the one proposed by Mr. Kingsmill.

Mr. Kingsmill said that his method could not compare for accuracy with the calimeter and theodolite, but he would be sorry to carry the theodolite to places where he could easily carry the other. The idea had occurred to him, on hearing that Colonel Legge contemplated an expedition to the plateau on the top of Ben Lomond. The Colonel intended to do the work with a plain table, and this new method had been designed to assist.

Stereoscopic Photography.

Mr. W. E. Masters, B.A., LL.B., next delivered a very lengthy and fluent address on "Stereoscopic Photography," illustrated by numerous diagrams. The effect produced by viewing a picture through the stereoscope for the first time was an appearance of reality, which cheated the senses with its seeming truth. Ordinarily, when viewing a photograph the same height and breadth only, distance and solidity were suggested merely by the arrangement of high lights and shadows, but in the stereoscope we experienced a sense of relief or solidity, the mind feeling its way into the depth of the picture. The effect was analogous to that produced by listening to a familiar voice through a telephone. We did not hear the speaker's voice, but a mechanical reproduction of it, the instrument transmitting air waves in all essential respects the same as caused by the voice. So in the stereoscope the pictures caused undulations of the luminiferous ether which affected our organs of sight, as the original scene depicted would do, saving, of course, the impressions of movement and colour, the illusion of reality in each case being perfect. It was known to the ancients that each eye received a distinct impression. Euclid demonstrated this 2,000 years ago by means of geometrical figures, but it was not until 1838 that the first stereoscope, an instrument enabling the eyes to unite two dissimilar views, was invented by Charles Wheatstone. In his instrument an arrangement of mirrors assisted the eyes in blending the pictures, but shortly after his instrument was produced, Sir David Brewster devised one on a totally different principle, that of the refraction of the rays of light by semi-lenses, and this, with certain minor improvements, was the instrument at present used. At first, stereograms were drawn by hand, but with the discovery of the art of photography by Louis Daguerre, in 1838, the geometrical designs were replaced by photographs. At the exhibition in 1861 95 per cent. of the photographic souvenirs were stereoscopic. The beautiful flash-light photograph was the latest development in the art of stereoscopic photography. The pictures, which might be of any size, were taken from different angles, and were printed in complementary colours, and partly super-imposed, being viewed through colour filters which screened off all colours, allowing each eye to see its appropriate picture only, the brain blending the two impressions. The views exhibited included scenes from England and the Continent, and were remarkably beautiful; objects standing out in the foreground with startling reality. This system, observed Mr. Masters, was as yet in its infancy, and would probably solve the problem of projecting stereoscopic views by means of the lime-light lantern. The Kromaz stereoscope, an instrument adopting the super-imposed print method of three colour photography, was exhibited for the first time in Hobart, a vase of flowers being depicted, standing out in bold relief in natural colours.

At the conclusion of the address a discussion ensued, in which the Chairman, Mr. Horatio Yeates, and Mr. Kingsmill took part, after which, on the motion of the Chairman, a hearty vote of thanks was tendered to Messrs. Kingsmill and Masters for their addresses, His Excellency warmly complimenting the latter on the able manner in which he had treated his subject.

The Secretary announced that the last meeting of the season would be held on the second Tuesday in November, when Mr. R. M. Johnston would contribute a paper on "The ethical, economical, and practical aspects of old-age pensions," and Dr. Gerard Smith would exhibit some interesting photographs of Egyptian temples.