

tensively worked as early as 1871. None were recorded in Costa Rica, however, until 1915, when American engineers found deposits in western Costa Rica and, under the stimulus of the prevailing high prices, explored many of them. During 1916, 1917, and 1918 about 18,000 tons of ore was exported from Costa Rica to the United States. In October, 1918, the Geological Survey, taking advantage of the presence in Costa Rica of an American geologist, J. D. Sears, had the deposits examined. Dr. Sears afterward visited several new deposits in Panama.

The deposits in Costa Rica are found at several places on the Nicoyan peninsula, in the Province of Guanacaste, which extends along the Pacific coast. Most of the known deposits, and all those which have been the source of the shipments, lie within about 16 miles of Playa Real on the Pacific coast in the northern part of the peninsula. Other isolated deposits occur in the eastern part of the peninsula, near the Gulf of Nicoya. As the central part of the peninsula is covered with dense forest and is difficult to cross, further exploration may bring other deposits to light.

Although deposits of manganese oxides were examined at thirty-six places near Playa Real, most of the ore shipped has been derived from three deposits that lie in an area scarcely 1,000 feet square at Playa Real. These deposits are owned by the Costa Rica Manganese & Mining Co., and American company. At Playa Real, as at many other places in the region, the manganese oxides form very irregular masses, which appear to extend along the crests of hills. The genesis of the deposits is obscure, but sufficient work has been done to show that only a few persist for as much as 100 feet below the surface. Estimates of the size of the known deposits, which, however, are based upon very inadequate data and are therefore probably low, indicate that they might yield 10,000 to 15,000 tons in addition to the 18,000 tons already shipped. The oxides are intimately mixed with silica, so that careful sorting is necessary to produce material containing more

than 45 per cent. of manganese. After the oxides are sorted they are carried by lighters to ships anchored near the shore.

The deposits in Panama lie in an inaccessible region along Boqueron River, about 20 miles northeast of Colon. They are about 12 miles southwest of the deposits at Nombre de Dios, which were extensively explored from 1871 to 1902. These deposits are poorly exposed and only a few of them have been explored, but the indications in two small areas warrant an estimate that the deposits there may yield 25,000 to 30,000 tons of high-grade oxides. As there is considerable float along the near-by streams other deposits may be found. In order to export the material, however, roads or tramways must be constructed at considerable expense.

THE CAMBRIDGE NATURAL SCIENCE CLUB¹

THE Cambridge Natural Science Club, founded in 1872, celebrated its 1,000th meeting by a dinner in the combination room of St. John's College, Cambridge, on Saturday, January 24. The president, Mr. J. M. Wordie, was in the chair. There were eighty-three members and guests, and the occasion was taken to bring out a complete list of the members of the club since its inauguration. This shows that of the 330 members 52 are dead, 10 having been killed or died on active service during the war, and that 55, or 16.7 per cent., had received the blue ribbon of science—the F.R.S. Indeed, in returning thanks for the guests, Sir J. J. Thomson, who, although president of the Royal Society and master of Trinity, had never been a member of the club, thought that the proportion of fellowships of the Royal Society was probably higher among members of the club than among fellows of colleges elected on account of their attainments in natural science. He confessed that he had never taken the Natural Science Tripos, though he had often examined others for it, and pleaded in defence that, like Professor W. H. Bragg, also a guest, he had made some vicarious amends by submitting a son to the ordeal. It may be noted that Professor W. H.

¹ From the *British Medical Journal*.

Bragg and his son divided the Nobel Prize in 1915 for work on X-rays. "The Club" was proposed by Dr. J. G. Adami, the recently appointed vice-chancellor of the University of Liverpool, who insisted on the educational value of the club, which, as a past professor, he seemed to rate higher than that of lectures; that ideas struck out in a discussion were often of great value was accepted as true by Professor Marr, who, as one of the senior honorary members, replied to the toast in an amusing speech. On the cover of the menu there was an attractive reproduction of Kneller's portrait of Sir Isaac Newton, painted in 1689, two years after the publication of the *Principia*, and apparently the only authentic portrait done in his prime. The original portrait is in the collection of the Earl of Portsmouth, but the reproduction was a photograph of the Trinity College engraving executed about 1866 by Oldham Barlow.

FELLOWSHIP OF THE NEW ZEALAND INSTITUTE

At the annual meeting in 1919 of the board of governors of the New Zealand Institute it was decided to establish a fellowship of the institute, since—apart from Hutton and Hector Memorial Medals, which could only be gained by very few—there were no honors attainable in the Dominion for those engaged in scientific research, the number of whom has greatly increased in recent years, while more branches of science are pursued than formerly. This fellowship, which entitles the recipient to place the letters "F.N.Z. Inst." after his name, is limited to forty fellows, and not more than four from now on are to be elected in any one year until the number is complete, after which only such vacancies as occur may be filled.

In order to make a commencement, and as there were many who well deserved recognition for their long and valuable services to science, it was resolved that in the first place twenty original fellows be appointed, these to consist of the living past presidents, together with Hutton and Hector medallists—ten in all, and of ten more members of the institute

who were to be elected by the past presidents and medallists from persons nominated by the various affiliated branches of the institute.

The fellowship is to be given only for research or distinction in science, and it is plain that the distinction even now is far from easy of attainment, and that, as time goes on, its value will greatly increase.

The election and appointment of the original fellows took place at the close of 1919, and has resulted as follows:

B. O. Aston, F.I.C., F.C.S.

*†Professor W. B. Benham, M.A., D.Sc., F.R.S., F.Z.S.

†Elsdon Best.

*†T. F. Cheeseman, F.L.S., F.Z.S.

*†Professor Chas. Chilton, M.A., D.Sc., LL.D., M.B., C.M., F.L.S., C.M.Z.S.

*††L. Cockayne, Ph.D., F.R.S., F.L.S.

†Professor T. H. Easterfield, M.A., Ph.D., F.I.C., F.C.S.

Professor C. C. Farr, D.Sc., F.P.S.L., A.M.I.C.E.

G. Hogben, C.M.G., M.A., F.G.S.

G. V. Hudson, F.E.S.

Professor H. B. Kirk, M.A.

††P. Marshall, M.A., D.Sc., F.G.S., F.R.G.S., F.E.S.

*D. Petrie, M.A., Ph.D.

†Sir Ernest Rutherford, F.R.S., etc.

Professor H. W. Segar, M.A.

S. Percy Smith, F.R.G.S.

R. Speight, M.A., M.Sc., F.G.S.

Professor A. P. W. Thomas, M.A., F.L.S.

*Honorable G. M. Thomson, M.L.C., F.L.S.

J. Allan Thomson, M.A., D.Sc., A.O.S.M., F.G.S.

SCIENTIFIC NOTES AND NEWS

PROFESSOR ALBERT A. MICHELSON, of the University of Chicago, has been elected a foreign associate member of the Paris Academy of Sciences to succeed the late Lord Rayleigh.

THE Bruce Gold Medal of the Astronomical Society of the Pacific has been awarded to Professor Ernest W. Brown, of Yale University, for "distinguished services to astronomy." The award was officially announced at the annual meeting of the society on January 31. It is hoped that Professor Brown may be

*Past President.

†Hector Medallist.

†Hutton Medallist.