sitated enlargement of the building about twenty-five years ago, when a large hall was added. This is a quadrangular structure eighty-six feet by forty-three feet, with a ground floor and two galleries connected by two spiral staircases, and lighted by forty-eight windows. A second hall of the same dimensions has just been completed, and will soon be occupied. It is connected with the old hall on each floor by a corridor fifty-six feet long, and the floors and roof are of concrete, and it is intended to replace those of the old hall with the same material at once. It is estimated that the entire collection comprises considerably more than 2,000,000 specimens, attached to 1,300,000 sheets.

With the exception of Carey's North American herbarium, Lindley's orchids, and Borrer and Watson's British herbaria, the plants from all parts of the world are arranged in one series, the genera according to Bentham and Hooker's "Genera Plantarum," and the species geographically. It is unnecessary to enlarge on the value of a herbarium containing the types of all the colonial floras and other works issued from Kew—it is known to all botanists. The library, which the present director has made his special care, is one of the richest, even if not the richest, in existence, and is in admirable condition. It comprises upwards of 20,000 volumes, besides about 10,000 pamphlets. The Government published a catalogue of the books in 1899, and annual supplements since. There is also a separate collection of about 100,000 published figures and original drawings of plants.

W. BOTTING HEMSLEY.

THE SOUTH AFRICAN ASSOCIATION.

THE inauguration of the South African Association for the Advancement of Science took place at Cape Town on April 27. The *Cape Times*, to which we are indebted for the details of the proceedings, describes the successful gathering as a British Association meeting in miniature. The new Association enters upon its career with a membership of seven hundred persons from many parts of South Africa.

The main objects of the organisation are the same as those of the parent body. As defined in the Constitution, they are "to give a stronger impulse and a systematic direction to scientific inquiry; to promote the intercourse of societies and individuals interested in science in different parts of South Africa; to obtain a more general attention to the objects of pure and applied science, and the removal of any disadvantages of a public kind which may impede its progress."

The presidential address was delivered by Sir David Gill, K.C.B., the Astronomer Royal for South Africa, who explained the nature of the work which it was hoped the new Association would accomplish. During the course of his able address Sir David Gill announced that Lord Kelvin had written that, although in 1905 he will be eighty-one years of age, he intends, if he is as well then as he is now, to accompany the British Association on the visit to South Africa.

The work of the sections began on the second day of the meeting. The presidential addresses in the various sections were delivered by the following men of science:—

Section A.—Astronomy, Chemistry, Mathematics, Meteorology, and Physics, by Prof. P. D. Hahn; Section B.—Anthropology, Ethnology, Bacteriology, Botany, Geography, Geology, Mineralogy, and Zoology, by Dr. R. Marlotti; and Section C.—Archæology, Education, Mental Science, Philology, Political Economy, Sociology, and Statistics, by Dr. Thomas Muir, C.M.G., F.R.S., Director of Education for Cape Colony.

Among the papers read during the course of the meetings the following deserve mention. In Section A, on ferments causing "casse" in wine, by Mr. Raymond Dubois; meteorology in South Africa: a retrospect and prospect, by Mr. C. M. Stewart; close binary systems, by Dr. Alex. W. Roberts; determination of mean temperature, &c., from observations made at second-order stations on the Table Land, by Mr. J. R. Sutton; some recent work on the discharge of electricity from heated bodies, by Prof. J. C. Beattie.

In Section B, (1) on the occurrence of an epidemic among the domesticated animals in Mauritius in which Trypanosomata were found in the blood; (2) note on the co-relation of several diseases occurring among animals in South Africa; (3) on the production of a malarial form of South African horse sickness, by Dr. Alex. Edington; the minerals of some South African granites, by Mr. F. P. Mennell; on the classification of the Theriodonts and their allies, by Dr. R. Broom; (1) some morphological and biological observations on the genus Anacampseros; (2) on some stone implements in the Albany Museum, by Dr. S. Schonland.

In Section C, some aspects of South African forestry, by Mr. D. E. Hutchins; dry crushing of ore preparatory to the extraction of gold, by Mr. Franklin White; sewage disposal in Cape Colony, by Mr. J. Edward Fitt.

In Section D, the library system of South Africa in comparison with those of England and America, by Mr. Bertram L. Dyer; iteration as a factor in language, by Prof. W. Ritchie; common sense and examination, by Mr. P. A. Barnett; Cape Dutch, by Prof. W. S. Logeman; how we get knowledge through our senses, by Rev. Dr. F. C. Kolbe.

The example set by the British Association of arranging for receptions and other social functions to lighten the intellectual fare provided was followed at Cape Town, and the excursions, conversazioni, &c., were well attended and much appreciated.

THE ROYAL SOCIETY CONVERSAZIONE.

THE conversazione held at the Royal Society on Friday last was attended by a large and distinguished company, among the visitors being H.R.H. the Prince of Wales and H.S.H. the Duke of Teck. There were numerous exhibits illustrating progress in various branches of science, several of them being of great interest. Following our usual course, we abridge the particulars given in the descriptive catalogue as to the character and purpose of the objects on view.

Sir William Crookes, F.R.S., exhibited objects illustrating certain properties of the emanations of radium. If a solid piece of radium nitrate is brought near a blende screen, and the surface examined with a pocket lens magnifying about 20 diameters, scintillating spots are seen to be sparsely scattered over the surface. On bringing the radium nearer the screen the scintillations become more numerous and brighter, until when close together the flashes follow each other so quickly that the surface looks like a turbulent luminous sea. A convenient way to show these scintillations is to fit the blende screen at the end of a brass tube with a speck of radium salt in front of it and about a millimetre off, and to have a lens at the other end. Focusing, which must be accurately effected to see the best effects, is done by drawing the lens tube in or out. It is proposed to call this little instrument the "Spinthariscope."

Specimens of brittle gold and photographs illustrating their microstructure were shown by Dr. T. K. Rose. Gold of the British imperial standard, containing 91·6 per cent. of gold and 8·3 per cent. of copper, is made brittle and unfit for coinage by the presence of minute traces of certain impurities such as tellurium, lead, bismuth, &c. Similar or even considerably greater quantities of these elements, excepting bismuth, do not affect the ductility of fine gold. The deleterious effects of the impurities are removed by the presence of oxide of copper dissolved in the metal. The changes in the quality of coinage bars are accompanied by profound changes in the microstructure of the metal.

Dr. Morris W. Travers exhibited hydrogen thermometers for measuring low temperatures. The thermometers are of the constant-volume type, and are intended for the