

Advancement of Science. The number registered as in attendance was 937, of whom 324 were new members.

The local Committee, of which Dr. T. Sterry Hunt was chairman, managed their multifarious duties with skill and efficiency. Mention should especially be made of the various delightful excursions that were planned to Quebec, Ottawa, Lake Memphremagog, and also of the visit to the Montreal Harbor, the celebrated Victoria Bridge, and the shops of the Grand Trunk Railroad.

We conclude this notice by a short account of our body Scientific Visitors.

PROFESSOR G. J. BRUSH.

Professor George J. Brush was born in Brooklyn, New York, on the 15th of December 1831. His father was a merchant in that city, but in 1835, retiring from business, took up his residence in Danbury, Connecticut. Young Brush intended to pursue a business career, and accordingly entered, in the latter part of 1846, the counting-house of a merchant in Maiden Lane, New York City. There he remained for nearly two years, but the taste for scientific study which he had already acquired did not desert him, and, in particular, he took advantage of every opportunity that came in his way to go off upon mineralogical excursions.

Just about this time Professor John P. Norton and Professor Silliman, Jr., opened at Yale College a laboratory for the purpose of practical instruction in the applications of science to the arts and agriculture. To attend these lectures, Professor Brush, not as yet seventeen years old, repaired to New Haven in October, 1848, intending at this time to change his mercantile life for that of a farmer. This event changed his career. He came to attend a single course of lessons on agriculture. He remained two years as a student of chemistry and mineralogy. In October, 1850, he went to Louisville, Kentucky, as assistant to Benjamin Silliman, Jr., who had been elected Professor of Chemistry in the university of that city. There he remained the following winter, and in March, 1851, made one of the party who accompanied the elder Silliman on a somewhat extended tour in Europe. Returning to Louisville in the autumn of that year, he continued acting in his old capacity until the spring of 1852. Then he returned to New Haven, and after undergoing examination, received, with six others, at the commencement of 1852, the degree of Ph. B., the first time it was given by the college.

The academic year 1852-53 was spent by him at the University of Virginia, where he was employed as assistant in the chemical department. In 1853, he sailed for Europe, and, during one year at the University of Munich, devoted himself to chemistry and mineralogy under Liebig, Von Kobell, and Pettenkofer. The year following—that of 1854-55—he spent at the Royal Mining Academy in Freiberg, Saxony. Just about this time an effort was being made at New Haven to put the scientific department of Yale College in a more satisfactory position than it had previously held.

He was first offered the chair of mining and metallurgy; but this he declined as embracing too much, and the title was limited to that of metallurgy alone. This, several years after, was exchanged for that of mineralogy. To qualify himself still further for the position, the newly-elected President went, in the autumn of 1855, to London, where he pursued his studies in the Royal School of Mines. The following year he made an extended tour through the mines and smelting works of England, Scotland, Wales, Belgium, Germany, and Austria. In December, 1856, he returned to this country, and, in January, 1857, he entered upon the duties of his professorship.

From this time, the history of Professor Brush has been the history of the special scientific department of Yale College, which, in 1860, owing to the liberal benefactions of Mr. Joseph E. Sheffield, received the name of the Sheffield Scientific School.

Others have done their part towards developing various departments of the school, but the growth as a whole, the position which it has acquired among scientific institutions, whatever that position may be, has been due to him very much more than to any other one man connected with it.

Nor has Professor Brush been idle in his special work, in spite of the exhausting demands made upon his time and thought by the management of the Sheffield Scientific School.

He co-operated with Professor Dana in the preparation of the fifth edition of the treatise on "Descriptive Mineralogy," published in 1868.

In 1876 he brought out also a "Manual of Determinative Mineralogy and Blowpipe Analysis." In addition to these and other works he has been a constant contributor to the *American Journal of Science*.

In 1862 Professor Brush was made a corresponding member of the Royal Bavarian Academy of Sciences; in 1866 a member of the Imperial Mineralogical Society of St. Petersburg; and in 1877 a foreign correspondent of the Geological Society of London. He is also a member of the American Philosophical Society, of the National Academy of Sciences, and of various other scientific bodies in this country. In 1880, at the meeting of the American Association for the Advancement of Science, held at Boston, he was elected its president for the following year, and in that capacity presided over the meeting held in August, 1881, at Cincinnati.

PROF. FREDERICK PUTMAN.

Prof. Frederick Putman, of Cambridge, Mass., the permanent Secretary, is one of the oldest members of the Association, which he joined in 1857, at the age of seventeen the "baby member."

For a year previous to this he had been the assistant of Agassiz, whose pupil he was for eight years, and under whom he had charge of the department of ichthyology.

In 1864 Mr. Geo. Peabody gave \$180,000 to found the Peabody Academy of Science at Salem, Mass., and of this Professor Putman was appointed the first director, an office which he held for eight years.

A few years after this first gift Mr. Peabody founded, in addition, a museum in connection with the Harvard University, known as the Peabody Museum of American Archaeology and Ethnology, and of this Professor Wyman was appointed the first curator, an office which he held until his death. On this occurring, in 1874, Professor Putman was appointed his successor, a post which he still holds.

In addition to this, the professor received, last July, at the hands of the Governor and Council, of Massachusetts the appointment of Commissioner of Inland Fisheries, in succession to Col. Lyman, a post for which his early studies have particularly fitted him.

Besides his connection with the American Association, Professor Putman is a member of the Society of Anthropology of France, and of various other Scientific societies at home and abroad.

DR. CARPENTER.

Dr. William B. Carpenter, eldest son of the late Dr. Samuel Carpenter, brother of Mary Carpenter, the well-known philanthropist, and of Dr. Philip Carpenter, late of Montreal, was born in Exeter, in 1813; but passed the greater part of his early life in Bristol, whither his father had removed in 1817. After receiving his general education under his father, he entered upon the study of medicine, which he pursued in the Bristol Medical School, and afterwards in London and Edinburgh. He took the degrees of M. D. in Edinburgh in 1839; in which year he published the first edition of his "Principles of General and Comparative Physiology," a work which at once gained a high scientific rank, and was soon followed by a companion treatise on "Human Physiology," which speedily acquired an extended reputation, being used as a text book in many of the principal medical schools, as well in America as in Great Britain.

Desiring to make the science rather than the practice of medicine the business of his life, Dr. Carpenter removed to London in 1846, where he has held several public appointments, notably that of Registrar (or Principal Executive Officer) in the University of London, which institution under his administration has undergone a remarkable development. That office he held from 1856 to 1879, retiring from it in order to be able to devote the remainder of his life to scientific pursuits, and especially to the completion of several Monographs (among them one on *Eozoon Canadense*) for which he has been collecting materials during several years.

As an original investigator, Dr. Carpenter first became known by his microscopic researches on the structure of shells; then by his studies in the group of Foraminifera, on which he now ranks as the leading authority; and subsequently by his researches on the physical geography of the deep sea, the further prosecution of which by the "Challenger" Expedition was undertaken by the British Admiralty on his (Dr. Carpenter's) representation of its scientific interest and importance.