

A short discussion followed the reading of the paper. The only important point brought forward, however, was a statement by Mr. Hugh Bell that, at Clarence, they had been carrying on a process almost identical with that described by the author. Had he, the speaker, been aware that the plan was in use elsewhere, and had he known a paper was to be read on the subject, he would have come provided with certain figures bearing on the matter.

The meeting then broke up after the usual votes of thanks had been duly passed.

The autumn meeting of the Institute is this year to be held in America. The meeting will be held in New York, and we hear rumours of vast preparations that are being made by the hospitable metallurgists and engineers of the United States to welcome their British *confrères*. Members are left to make their own way to New York, but upon landing they become the guests of the American Institute of Mining Engineers. From an outline programme we have seen, it would appear that the only limit to the excursion will be the time at the disposal of members, which, those who know American hospitality best will agree, is sure to be exhausted long before the good-nature of their hosts.

We should have stated before that Mr. W. D. Allen, of Sheffield, this year has been awarded the Bessemer Gold Medal. Mr. Allen was associated with Sir Henry Bessemer in the manufacture of Bessemer steel from the very first. Indeed, he may be said to have been present at the birth of the invention, and was fully acquainted with the whole process before a single patent was taken out.

A MONUMENT TO A FAMOUS JAPANESE CARTOGRAPHER AND SURVEYOR.

THE *Japan Weekly Mail* contains a report of the unveiling of a monument in Tokio on December 14, 1889, to the memory of Ino Chukei, a Japanese cartographer and surveyor of the early part of the present century. The ceremony was performed by Prince Kitashirakawa, President of the Tokio Geographical Society. The name of Ino Chukei was first made familiar to the Western world by Dr. Naumann, the organizer, and for many years the head of the Geological Survey Bureau of Japan. More lately, Dr. Knott wrote two short biographies of Ino, the one published in the *Transactions of the Asiatic Society of Japan* (vol. xvi., 1888), and the other as an appendix to the memoir on the recent Magnetic Survey of Japan, published in the *Journal of the College of Science, Imperial University* (vol. xi., 1888). Ino was by profession originally a brewer, and did not begin his scientific life till he was past fifty. The story of the enthusiastic septuagenarian travelling over the length and breadth of Japan with his quadrant, his azimuth circle, his compass, and his clock is almost a romance. His latitude measurements are still of importance to the cartographer, and his map of Japan has formed the basis of every map since constructed. He finished his grand survey in 1818, after 17 years of travelling and observing. And now, nearly seventy years after his death, a lasting memorial has been raised at Shiba, in Tokio. The ceremony of unveiling the monument began at 2 p.m. on December 14, in the presence of a large company. Amongst those present were Prince Kitashirakawa, Viscount Sano, Viscount Enomoto, Admirals Akamatsu, Nakamura, and Yanagi, Mr. Hanabusa (Councillor), Mr. Arai, Director of the Meteorological Office, Mr. Watanabe, President of the Imperial University, many of the University Professors, and others. The Chinese Representative, the German Minister, M. Dautremer, of the French Legation, and Profs. Burton, Divers, and Knott, may be named as the diplomatic and scientific representatives of foreign nations. The Naval Band was in attendance, and filled the intervals between the different parts of the celebration with selections of music. Four Shinto priests first went through a religious ceremony, which consisted chiefly of purificatory rites, and an invocation to the spirit of Ino. Mr. Watanabe then read a report, giving a history of the movement, which originated seven years ago with the members of the Tokio Geographical Society, and culminated in the ceremony of the day. The original desire had been to put up the monument on the site of the spot where Ino made the first observations in his grand survey—that is, the point through which the zero meridian was taken. This was at Shinagawa. But it had been found more convenient to raise the memorial at Shiba, within sight of this

first station. The monument, designed by Prof. Tatsuna, of the Imperial University, and cast in bronze at the Kawaguchi Foundry, had cost nearly 3800 dollars. The whole of the expenses had amounted to about 4000 dollars, which had been met by voluntary subscriptions from the members of the Geographical Society and many others who desired to contribute their mite. The monument, a graceful obelisk of a dull green tint, was unveiled by Prince Kitashirakawa, a translation of whose speech runs thus:—"What an achievement in cartography was that of learned Ino Chukei! During the eras of *Kansei* and *Bunsei* (1790 to 1820), when Japan, at peace within her own borders, isolated from intercourse with the outer world, divided into a number of mutually-secluded fiefs, and, undisturbed by the cares of coast defence, was content with her own littleness, Ino, his fiftieth year already passed, commenced the study of geodesy, and, equipped with instruments of his own manufacture, devoted eighteen years of toil and suffering to the survey of the empire, bequeathing to posterity the memory of a truly great work. From the point of view of strategical advantage, from the point of view of the progress of civilization, from a domestic as well as from a foreign point of view, Ino undoubtedly was a credit to his country. His name is on the lips of the whole nation. The Emperor himself has bestowed posthumous rank on him and presents on his descendants. Japanese and foreigners have contributed to erect to his memory a monument of dimensions unparalleled in Japan. And it is a privilege conferred on me in this enlightened era that, as President of the Tokio Geographical Society, I am permitted to speak of his achievements and to unveil his monument. I rejoice greatly to take part in this imposing ceremony, and I am persuaded that the spirit of Ino in heaven will share the satisfaction which his posterity must feel on such an occasion. Reverentially, on behalf of this Society, I unveil the monument. May the fame of the illustrious dead grow with the growth of our country's civilization."

After some minutes' interval, Viscount Sano advanced to the foot of the steps that lead up to the pedestal, and introduced to the audience the great-great-grandson of Ino, who bowed and expressed the gratitude of the family for the honour done to their ancestor. Viscount Sano then gave a short biographical sketch of Ino, and an account of his great labours, for which he had earned the never-dying gratitude of his countrymen. This ended the ceremony. Later on, in the rooms of the Geographical Society, a select party assembled to inspect the rude instruments with which Ino carried out his observations. The obelisk is very graceful in form, and beautiful in its setting. As already mentioned, the colour is pleasing, and the inscription is artistic as only an ideographic inscription can be. The monument is 34 feet high, the obelisk itself being 27 feet. A flight of steps ascends to a square platform of masonry in the centre of which the pedestal rests. A railing, the bars of which are curved and puckered up so as to represent sea and clouds according to a common Japanese convention, runs round the outer edge of the platform and down the sides of the steps, allowing free ingress and egress to the pedestal and obelisk. The obelisk faces nearly south, and in its back is a door by which access can be gained to the interior. It is intended to place inside the instruments already spoken of, which were used in Ino's survey.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 1.—"The Development of the Sympathetic Nervous System in Mammals." By A. M. Paterson, M.D.

At the present time two opposite views exist among embryologists regarding the development of the sympathetic system. In both, the segmental formation of the sympathetic cord is upheld. According to the view of Remak and others, it is mesodermal, and formed *in situ*. According to the other view, it is ectodermal. Balfour and Onodi, who have maintained the latter view, differ, however, as to the fundamental origin of the sympathetic system—Balfour regarding each sympathetic ganglion as an offshoot from the spinal nerve, while Onodi considers it as a direct proliferation from the spinal ganglion.

For the present research, mammalian embryos were exclusively employed. The stage in development was first considered in