Scientific American.

ESTABLISHED 1845.

MUNN & CO. Editors and Proprietors

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN. A. E. BEACH.

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One copy, one year, for the U. S., Canada or Mexico.....$3 00
One copy, six months, for the U. S., Canada or Mexico..... 1 50
One copy, one year, to any foreign country belonging to Postal Union. 4 00

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The Scientific American Supplement

is a distinct paper from the SCIENTIFIC AMERICAN. THE SUPPLEMENT is issued weekly. Every number contains 16 octavo pages, uniform in size with SCIENTIFIC AMERICAN. Terms of subscription for SUPPLEMENT, $5.00 a year, for the U. S., Canada or Mexico. $6.00 a year to foreign countries belonging to the Postal Union. Single copies, 10 cents. Sold by all newsdealers throughout the country. See prospectus, last page.

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NEW YORK, SATURDAY, DECEMBER 17, 1892.

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SCIENTIFIC AMERICAN SUPPLEMENT

No. 885.

For the Week Ending December 17, 1892.

Price 10 cents. For sale by all newsdealers

PNEUMATIC TUBES FOR MAIL SERVICE.

"A scheme that will revolutionize the mail service," is the caption of a recent dispatch from Washington referring to transmission by pneumatic tubes. "Proposals," so the dispatch reads, "are now in the hands of Postmaster-General Wanamaker for the establishment of a line between New York and Brooklyn, and in Philadelphia, from the general post office to substations." Systems of small pneumatic tubes have for years been in use in Paris, London, Berlin, Vienna, New York, and other places. They are used chiefly for carrying telegraph messages between local stations. But they have not as yet "revolutionized" the mail service, and are not likely to. The capacity of the tubes is small, and the expense of working them large.

There are other means of securing frequent delivery which may be had for a tithe of the tube expense, if only the already established means of conveyance, such, for example, as is afforded by the street railways, is intelligently utilized. As illustrative we may say that messengers dispatched from the New York general post office to the Brooklyn general office at intervals of fifteen minutes would get the mail to Brooklyn faster than it probably could be distributed throughout that city by the carriers and yet would not cost, so it has been computed, as much as the interest would amount to on a pneumatic service between the two post offices. Following a like plan, if messengers should be dispatched at short intervals to and from the general post office and the sub-stations by way of the elevated and cross-town lines, letters and packages could easily be delivered between these points as fast as it would be possible for them to be distributed. Nor would the cost be anything like that of a pneumatic service. This being the case, it is to be hoped that the Postmaster-General will not commit the government to any costly schemes like those suggested.

THE METEORS OF NOVEMBER, 1892.

BY PROF. DANIEL KIRKWOOD, OF RIVERSIDE.

Within the memory of persons now living the meteors called shooting stars were regarded as gaseous matter generated in the atmosphere. Their true nature was wholly unknown, and works on astronomy made no attempt to account for their origin. Fortunately such phenomena are now better understood.

Persons who happened to be in the open air on Wednesday evening, November 23, had the privilege of witnessing a phenomenon of more than ordinary interest. A brilliant display of celestial fireworks commenced about six o'clock, and lasted several hours. Meteors at the rate of several hundred per hour were watched and counted by numerous spectators. The writer, at early twilight, counted 150 meteors in thirty minutes. Later, a neighbor made the number 700 per hour, and the whole number seen at a single station during the display must have amounted to thousands. How are the phenomena to be accounted for? How frequently do they occur? and When may they be again expected? were questions asked by many observers during the display in Southern California.

Aged persons remember Biela's comet—a telescopic body having a period of six years and eight months, or three periods in twenty years. One of its returns was due in the latter part of 1845. Instead of appearing alone, as on former returns, it was seen as two separate bodies, as far apart as the moon and the earth. The dissolution of this wonderful body had therefore commenced, and the return (in 1852) was accordingly looked for with still increasing interest. It came true to time, but the fragments still further apart. That was the last time it ever appeared *as a comet*. It was due in 1859, 1865 or 1866, 1872, 1878, 1885, and in November, 1892. This process of falling to pieces began, as we have seen, in 1845, advanced from year to year till the fragments became too small to be individually seen. They pass, however, through our atmosphere, become ignited, and are thus rendered visible. In a work entitled "Comets and Meteors," published several years since, it was said of this shower's predecessor: "This cometary mass will be in close proximity to the earth about the last of November, 1892. Another brilliant meteoric shower may therefore be expected at that epoch."* This is the shower just seen, as predicted in 1873. The study of these periodic showers has established many facts in regard to their phenomena—facts now to be found in recent works on astronomy.

DR. ERNST WERNER SIEMENS.

This well known electrician and engineer died December 6, at Berlin, Germany, 76 years of age, having been born at Lenthe, near Hanover, December 13, 1816. He was the elder of the three bothers, Ernst W., Karl Wilhelm, and Friedrich, all of whom have made brilliant records in science. Ernst Werner was educated at the Lubec Gymnasium, and joined the Prussian Artillery in 1834, where his eminent talents soon attracted notice, and having passed through the military schools, gained him the rank of lieutenant in 1837. While still holding this appointment in the army he applied himself with great zeal to the study of practical chemistry and the physical sciences, and became the inventor of the process of electro-gilding, of the differential governor, and of the electric automatic recording telegraph.

As member of a commission of the Prussian General Staff for the introduction of the electric telegraph system in place of the optical telegraphs, he proposed, in 1847, the application of subterranean conductors, insulated by gutta percha, by means of a press invented by him for that purpose, which is still being used in the manufacture of cables. With the help of these insulated wires he succeeded, in the spring of 1848, together with Prof. Himly, in laying the first submarine mines with electric ignition for the protection of the harbor of Kiel from the Danish fleet. In the same year he carried out the first great telegraph line in Germany between Berlin and Frankfort-on-Main, and in the following year the subterranean line between Berlin and Cologne.

Dr. Siemens left the government service in 1850, and devoted himself afterward entirely to scientific studies and to private enterprises. In 1847 he had already laid the foundation of the telegraph works afterward carried on by him under the firm name of Siemens & Halske in Berlin, the celebrated establishment which was destined to become, and at present is, one of the chief centers for the application of electricity to the industrial arts.

The late Emperor Frederick III., of Germany, conferred upon him the patent of nobility. He was also the recipient of many other distinctions and honors.

Dr. Siemens' lectures and papers have been published in the transactions of different learned and scientific societies and in various periodicals.

Dr. Siemens' was an honorary member of the British Institute of Electrical Engineers. At the time of his death he was engaged in building an electric railroad in Berlin.

* Page 88.

The Third Annual Mineralogical Exhibition of the Brooklyn Institute.

The mineralogical section of the Brooklyn Institute has had the good fortune to attract a group of collectors who have combined scientific precision with the more popular enthusiasm for beautiful specimens. It has, therefore, been able to make a public exhibit at once instructive and entertaining, and the exhibition given last week by its members of selections from their cabinets was unquestionably one of great merit. It would have delighted the most fastidious, and to the observer its numerous examples of mineralogical association, form, and distribution were of real importance. The large room of the Institute devoted to the meetings of the art section of the institution was well filled with the cases of members of the mineralogical section, in which, with much taste, care, and discriminating arrangement, they displayed the treasures of their separate cabinets. A brief and necessarily imperfect glance at the many interesting exhibits will afford the readers of the SCIENTIFIC AMERICAN some suggestion of the varied and even brilliant exhibit.

Among the first cases to attract the visitor was that of Mr. Charles L. Hatch, of Brooklyn, where a very excellent suite of Paterson minerals were exhibited, taken from the classic Hoxie's quarry, which has contributed almost a new chapter in the study of secondary minerals. Among these was an amethyst group, perhaps the finest secured at Paterson; some of the peculiar quartz pseudomorphs, prehnite; stilbite in process of silicification; datalite in large green crystals; very large apophyllite prisms; cut and polished prehnite, very charming with its mottled and clouded surfaces; a large henlandite, and some laumontite specimens.

Near Mr. Hatch were some striking objects in the exhibit of Mr. J. W. Freckelton, the industrious and painstaking treasurer of the association. Here were interesting sections of stalactites, horizontal and longitudinal, showing their wave-like accretion; lamellar copper-red zincites from New Jersey; large pectalite spheres from Paterson; a handsome calcite, with cleavage seams over its surface; and handsome apophyllites.

Dr. R. W. Raymond showed a wood-copper with reticulated surface, apparently resulting from replacement of ligneous fiber; bright yellow gold most captivatingly inclosed in white quartz, from Mariposa, Cal., and many other admirable specimens. Dr. S. E. Stiles exhibited a pseudomorph of serpentine after actinolite, scattered in green blades over foliated talc, from Tompkinsville, S. I.; and a curious hydrodolomite, from Mott Haven, with pipe-like pustulose projections. Dr. J. H. Hunt displayed a Paterson suite, among which was a large mass of the quartz pseudomorph so characteristic of this locality, coated with quartz, hematite, laumonite, apophyllite, and henlandite—a remarkable illustration of mineralogical differentiation. Dr. Hunt also showed a handsome tourmaline, from New Hampshire, and the radiated rubellite in lepidolite schist from San Diego County, Cal. Wm. Urban had the distinction of exhibiting the largest and most deeply colored prehnite, from Paterson, a really splendid ex-