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NEW YORK, SATURDAY, MAY 28, 1881.

Contents.

(Illustrated articles are marked with an asterisk.)

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No. 282,

For the Week ending May 28, 1881.

Price 10 cents. For sale by all newsdealers.

Table listing contents of the supplement, including sections like 'I. ENGINEERING AND MECHANICS', 'II. ELECTRICITY, ETC.', 'III. NATURAL HISTORY, ETC.', etc.

COMET TELEGRAPHY.

In a special circular issued by the Science Observer the announcement is made of the receipt by cable of the elements and ephemeris of Swift's comet (a 1881), as computed by Drs. Copeland and Lohse at the Observatory of Dun Echt, in Scotland. The experience with Swift's periodical comet of last year, which was not seen at all in Europe for nearly a month after its discovery, owing to the moonlight and a total inability to determine its position after the moon had gone, was useful. It was an experience which involved the loss of many observations before perihelion passage, and caused the Boston Scientific Society to adapt a code to the telegraphic transmission of astronomical intelligence, and the first test of this code has just been made.

The elements from Boston were sent across a few days ago, and those computed at Dun Echt have just been received at Boston, and form the subject of a special circular of the Science Observer. As a proof of the adaptability and utility of this astronomical code, both the original message and its translation are given. By the same code the announcement of a comet, which now requires a message of sixteen words, with a liability to error, can be condensed into seven words, five of which are necessary and two of which serve as check words to correct any possible error that might occur in the other five.

The elements and ephemeris computed at Dun Echt, on Monday, May 9, were transmitted by cable to Boston in the following message: "Decimosexto erective contextual be- witchery anticly demonstrative courageously sputter arith- mancy stomachical auriferous suety bayou synecdochically bissextile eminently." The translation of this message is herewith given.

ELEMENTS OF SWIFT'S COMET, 1881 (a).

Per. Passage, 1881, May 20.67, Greenwich Mean Time.

Table with 2 columns: Element name and value. Includes Long. Perihelion, Long. Node, omega = pi - Q, Inclination, Log. q = .7674, Motion direct.

Table with 4 columns: Greenwich, midnight, A.R., Decl., Brightness. Includes data for May 10, 14, 18, 22.

Computed by Dr. R. Copeland and J. G. Lohse, from observations made at Dun Echt Observatory. The light at discovery is taken as unity.

To astronomical people the translation will, of course, be of scientific value and interest; but a friend at our elbow says he is willing to wager a hat that the majority of readers will understand the telegraph message better and regard it with a deeper interest than the translation.

OPENING OF THE ELECTRIC RAILWAY IN BERLIN.

It is announced by telegraph that the electric street railway of Dr. Siemens, in Berlin, was opened for public travel on the 12th of May, with much success. A number of prominent officials and scientists were present. We have heretofore given accounts of the progress of the construction of this work. It is a narrow gauge elevated street railway, mounted on posts, placed on the street sidewalks, something like portions of the elevated railway in New York, but on a smaller scale. The new railway is located on the outskirts of Berlin, and extends from the suburb known as Lichterfeld to Yeltow, a distance of about two miles. The passenger cars are narrow and short, carrying only 14 passengers. There are two tracks. The cars are propelled by a dynamo-electric machine, which receives electricity through the track and a suspended cable, from an electric generator, one at each end of the line, each generator driven by a sixty horse engine. An average speed of twenty miles an hour was expected to be realized. We shall give further particulars in future numbers of our paper.

The original electric railways, which were tried as experiments at Berlin and Dusseldorf exhibitions in 1879 and 1880, were worked by locomotives whose mechanism resembled a fixed dynamo-electrical machine. The rails of the line and the wheels of the locomotive engines were made of use to conduct the current of electricity and produce the necessary motion. The second conductor conveying the current produced by the stationary machine to the locomotive was connected with a system of brushes attached to the locomotive. These brushes touched a high-edged rail running in the middle of two other rails and insulated from the ground by a longitudinal sleeper. In practice, however, it has been found that this arrangement is exposed to serious interruptions. The wet, snow, and mud which (according to the season) collects in the ordinary course of traffic upon the middle rail interfere very seriously at times with its conductive capacity. It has accordingly been determined on the Berlin electric line to conduct the current by means of a copper wire properly insulated, and attached to pillars erected

alongside the line, the current being conducted from the copper wire to the locomotive by means of contact rollers.

IRIDIUM.

Several weeks ago we described the new process of John Holland, of Cincinnati, by which he is enabled successfully to work this refractory metal, thereby effecting some very remarkable and promisingly useful results. A patent has lately been granted for the invention. The process consists in bringing the iridium to a high heat, then adding phosphorus, then casting the metal into the desired form, and then eliminating the phosphorus by heating the metal again in a chalk bath. In a recent lecture before the Ohio Mechanics Institute, Cincinnati, Professor Dudley enlarged upon the value and importance of the discovery, reiterating the particulars given in the SCIENTIFIC AMERICAN of February 26, about the aid of the metal as an electrode in the electric lamp, its astonishing hardness, anti-corrosive nature, etc. He stated that the metal has the appearance of steel, but is much harder, being next in hardness to the ruby. It does not rust and cannot be injured by acids. Professor Dudley stated that a bar of it had been used with gratifying success, in place of the negative carbon in the electric light. It burned for sixty hours without any loss in weight or any perceptible change in form. Iridium cannot be fashioned by hammering while hot, nor can it be filed. It is moulded into convenient forms, and then sawed or ground by rapidly revolving copper disks, treated with emery and water. Many uses for the metal have been suggested. Besides its applicability to the electric lamp it has been found to be superior to platinum in telegraph instruments. Heretofore owing to the exceeding difficulty of working the metal its use has been much restricted, its most extensive employment, probably, being for pen points.

Faithful John.

JOHN W. JACKSON, for more than thirty years a faithful employe in this office, died on the 6th of May, of consumption, and was buried from the Colored Methodist Episcopal Church in Sullivan street the following Sunday.

"Old John," as he was familiarly called, had grown up with the SCIENTIFIC AMERICAN, and was as well known among business men down town as the paper itself.

John was faithful to his trusts and exacting in others. If he had business to transact with a business house or an official department and he discovered in the clerk a disposition to give another attention to the exclusion of himself he would have no argument with the clerk as to his rights, but would seek out the head of the firm or department and lay before him his complaint, which, he used to say, prevented delay and facilitated business next time.

A number of years ago, before the present system of making collections through our banks was general, John had a great many collections to make throughout the city. One day, in the absence of the member of our firm who was accustomed to indorse the drafts and checks for collection, a draft was received at the office for a considerable amount on the Sub-Treasury in this city. Another of the firm, who is no longer a member, indorsed the draft and John was sent to collect the money. He soon returned with his bag of gold, and laying it on the desk said: "Mr. W., your indorsement was not known to the cashier, and he at first refused to pay the draft, but on my assuring him it was all right, he said if I would add my indorsement he would pay the money, so I did it, and it was my signature that obtained it."

It is doubtful if Mr. W. ever fully understood why the colored porter's indorsement was necessary. And so wherever John's errands called him, his word or his signature was recognized authority.

Old John is very much missed about this office, and he will be missed by scores of business men about town, so identified had he become with the SCIENTIFIC AMERICAN and its thirty-five years' growth.

New Telephone Central Office System.

Mr. T. G. Ellsworth, manager of the John street office of the Metropolitan Telephone and Telegraph Company, of this city, has patented an improved telephone central office system, the principal object of which is to facilitate connection between wires of telephone lines in a telephone central office, and to afford means for making such connections rapidly and accurately.

Ordinarily in telephone central offices mistakes and delays in connecting and disconnecting the wires of communicating parties are of frequent occurrence, for the reason, among others, that the operator at the telephone cannot conveniently, or does not himself, connect and disconnect the wires, but gives directions to others to do so; hence results much noise and confusion, and consequent misunderstanding and forgetfulness or neglect of orders.

To avoid these difficulties Mr. Ellsworth has devised a system involving the use of novel switch connections and of novel telephone stands, and their peculiar arrangement relative to each other, whereby each telephone operator is enabled easily and without delay to connect and disconnect several communicating wires that are connected with his instrument.

American Medical Association.

The spring convention of the American Medical Association in Richmond, Va., the first week in May, opened with every promise of a successful and profitable meeting. Five hundred physicians were in attendance.