Practical & Theoretical Mechanics & Chemistry.

Notice of the Discovery of a new Metal by Mosander.

Extracted from Wöhler and Liebig's *Annal. der Chim. und Pharm.*

At the meeting of the Scandinavian Naturalists, at Stockholm, Mosander made a communication upon the subject of cerium and lanthanum. He exhibited, in the first place, some pale, clear, lemon-yellow oxide of cerium—described, generally, the characters of the protoxide and peroxide of cerium, and showed some of their salts. He then showed the colorless oxide of lanthanum, which remains colorless after ignition, and whose salts are also colorless. He then stated that the ores of yttrium, cerium and lanthanum, are accompanied, in the mineral kingdom, by a twin-brother, which is the cause of the known rose-red color of their salts, and which it is very difficult to separate from them, in consequence of their having the same solvents and precipitants. This body is the oxide of a hitherto unknown metal, to which Mosander has given the name didymium, (from the Greek *διδυμος*, a twin.)

The oxide of this metal is the cause of the brown color of the oxide of cerium, and of the brick-red of the oxide of lanthanum.

He also showed the dark brown oxide of didymium, and, for the sake of comparison, some crystalized salts of cerium, lanthanum, and didymium. The last are red.

He went on to say that he had not as yet succeeded in discovering a method for the perfect separation of these metals, and that this was the cause of the long delay of his communication on the subject of lanthanum; and that, had it not been for peculiar circumstances, he would not even yet have presented the results of his labors, which he could not consider but as imperfect. The preparations, he remarked, were not yet absolutely pure, but they were as nearly so as they could be made by spontaneous crystalizations of large masses of the solutions, in which the oxides had previously been purified as far as possible. A determination of the atomic weight of this metal, on account of the impurity of the preparations, he considered at present useless.

Notice of Walker's Hydraulic Elevator. By T. EWBANK.

To the Committee on Publications:

GENTLEMEN—I beg permission to reply to a remark of Mr. Wright, who, in the March number of the *London Mechanics' Magazine*, after paying a high, and, I fear, undeserved, compliment to my work on hydraulics, has inadvertently ascribed to it a defect which really does not belong to it, though doubtless it has many others. He observes—"There appears to be nothing on the subject of hydraulics that has escaped his researches, if we except a late invention of our countryman, Mr. John Walker, of Crooked Lane, London; the knowledge of which could not have crossed the Atlantic when Mr. Ewbank's book was published, or he would not have neglected to mention so novel and so simple an apparatus for raising water."

Mr. Walker's machine (described in the Journal of the Franklin Institute for August, 1842,) is the *Canne hydraulique* of French writers; three modifications of which Mr. Wright will find at pp. 372-3 of my book. Details of mechanism for *moving* hydraulic apparatus did not enter into my plan, and would have been incompatible with it; but had not the pages referred to passed the press ere Mr. Walker's "Elevator" was announced, his mode of combining two, or more, and of communicating motion to them, would have been noticed.

To the editor of the London Mechanics' Magazine, I feel peculiarly grateful for the flattering notice he has taken of my humble volume, in his popular and widely extended journal; and have no doubt that he will correct the unintentional error of his correspondent.

New York, April 27, 1843.

THOS. EW BANK.

Cement Marble.

Translated for the Journal of the Franklin Institute, from the Journal des Chemins de Fer.
By JOHN C. TRAUTWINE, Civ. Eng. and Architect.

An interesting paper on the cement marble of Mr. Keene, was recently read before the London Society of Arts.

This marble is a combination of sulphate of lime (gypsum) with alum. The gypsum undergoes the same preparation as the ordinary plaster of Paris, being deprived of its water of crystallization by heating it in a furnace. It is afterwards tempered with a saturated solution of alum, and, when this composition is again calcined and reduced to powder, it is ready for use. The cement is used like stucco; but, as it is susceptible of a high degree of polish, and may be colored by simply dissolving the proper mineral colors in the same water with which the powdered cement is mixed for the workman, we may thus obtain fine imitations of mosaics, and of veined marbles. This cement is not applicable to situations exposed to the influence of the weather, or of water; but it has been used in stucco for the interior of Windsor, Buckingham, and other, palaces. As it is of great hardness, it is well adapted to use as a facing instead of tiles; and it makes a good marquetry for paving. The interior of a church in London, and many other public buildings, have been paved in this manner.

FOR THE JOURNAL OF THE FRANKLIN INSTITUTE.

Digest of the Results of Experiments on Friction, performed by Capt. Morin, of the French Corps of Artillery. By Prof. J. F. FRAZER.

It has been thought advisable to digest into a tabular form, and publish in our journal, the results of a series of very elaborate and careful experiments, upon the subject of friction, performed at Metz, in the successive years from 1831 to 1834, under the sanction of the French government, by Capt. Arthur Morin, of the French corps of artillery.

These results have been more than once republished, and have been incorporated into several works upon practical mechanics; but we believe that no full statement of them has ever been made accessible to the American mechanic, and we have, therefore, carefully