

to develop clearly under the combined action of pyro-gallic and acetic acid, it be exposed to the light without previous drying, it is rapidly changed into a positive picture, and takes more or less perfectly the colors of the model. The stronger the light is, and the less the development of the picture, the more rapid but at the same time the less perfect is the transformation. A picture accidentally made in this way was completed in a quarter of an hour, and lasted some months with scarcely any loss of brilliancy, and even now, after more than two years standing on a shelf in the laboratory, it is not completely effaced.

In reference to this communication, M. Bertsch reminded the hearers, that every photographer had frequently observed that when the development of a direct positive was arrested at a certain point, and the picture placed on a black ground, effects were obtained which imitated the natural color very well. The whole picture takes on a rose-color, which imitates tolerably well the tones of the face; and as the hair and dress, which are darker than the face, are but slightly brought out, they allow the black color of the ground to appear through them, and thus produce the appearance of a coloring which does not in reality exist.—*Cosmos*.

A Lunar Tide upon Lake Michigan.

The annual meeting of the Chicago Historical Society was held last evening at the house of Hon. I. N. Arnold, on Erie Street.

Among other important facts communicated, Colonel Graham stated, as the result of a long and carefully conducted series of observations, his discovery of a lunar tidal wave upon Lake Michigan. From the comparatively small area of the body of water acted upon by the lunar influence, the co-ordinate of altitude could not be but small. This circumstance, added to that of the almost constant disturbance of the lake surface by winds, renders this co-ordinate of altitude measurable only in calm weather, and when the moon is in conjunction with or in opposition to the sun. At such times its average is about two-tenths of a foot, or say $2\frac{1}{2}$ inches.

This announcement will be a matter of much interest to the scientific world generally.—*Chicago Daily Journal*, Dec. 1, 1858.

Preparation of a Detonating Compound of Silver by means of Coal-Gas.

By MM. VOGEL and REISCHAUER.

If a current of ordinary coal-gas be passed through a neutral solution of nitrate of silver, the liquor soon becomes troubled and a crystalline precipitate is deposited. Under the microscope this precipitate is seen to be composed of a mass of small prisms, but its dominant property is that, after drying, it explodes as violently as fulminating

silver by heat or by the hammer. It however is distinguished from the fulminate of silver by the form of its crystals, its behavior with boiling water, its decomposition by potassa, and the quantity of silver which it contains; but especially by the fact that it is entirely decomposed by chlorhydric acid with evolution of a gas, which is combustible, and has the penetrating and peculiar odor of coal-gas. By means of this reaction the author determined the content of silver, and found from 78.3 to 84 per cent.

If the solution of nitrate be acid, the amount of precipitate is much diminished. If the acetate be used, a gray compound is formed which detonates, but less violently than that from the nitrate. By continuing to pass the gas through an acid solution of acetate of silver for several days, the silver was so completely precipitated, that the liquid gave no precipitate with chlorhydric acid.

If the gas from the decomposition of the precipitate from nitrate of silver by chlorhydric acid, be passed through another solution of the nitrate, it forms a brilliant white precipitate of microscopic crystalline needles. This precipitate also detonates with great violence.

As this compound burns with great difficulty by oxide of copper, the authors did not succeed in analyzing it; but hope to do so by the examination of the gas evolved by chlorhydric acid.

They remark also that the formation of this body seems to depend on the nature of the gas; so that sometimes the first bubbles of gas produce considerable turbidity, while at other times, it is only after some hours, that the action is manifested.—*Academy of Sciences of Munich*, 16th January, 1858.

*Process for Obtaining Aluminium.** Patented by LUIGI FERRARI CORBELLI. January 26, 1858, in London.

By the improved process the metal is obtained direct from argillaceous earth or clay, which after being well washed and cleansed from extraneous matters, such as stones, sticks, leaves, and such like substances, is submitted to the following process:—Take one hundred grammes of the well-washed clay, and after well drying it, dissolve it in about six times its weight of concentrated sulphuric acid or very strong hydrochloric acid. Dry the clay again, and heat it in an earthen vessel up to four hundred and fifty or five hundred degrees of the centigrade thermometer, after which mix with it two hundred grammes of yellow prussiate of potash, which should be quite dry and pulverized. The quantity of this material that should be added to the clay, will depend in some measure upon the quantity of siliceous matter contained in the clay. To this mixture add one hundred and fifty grammes of common salt, and place all the ingredients when intimately mixed together in a crucible. Heat them up to a white heat, and after the mass is cool, the aluminum will be found at the bottom of the crucible.

* From the London Repertory of Patent Inventions, No. 778.