

On the use of Alumina with Pigments designed for the Pallet. By
A. A. HAYES, Roxbury Laboratory.

IN preparing his paints, by levigating pigments with oil, the artist is often perplexed by the diversities which they exhibit after this operation. Some pigments present a chemical combination with the oil, while others can be suspended in it only by considerable labour, and soon separate when left at rest. These differences can be rendered of trifling importance, by employing such a substance as will retain those compounds which possess no attraction for the oil, in a state of uniform suspension, and whose action will be in some respects analogous to that of the gum used in inks and water colours. The property which the hydrate, or carbonate, of alumina possesses, of mixing freely with oil so as to form a transparent, consistent, and almost colourless compound, admirably fits it for this purpose. At the request of Mr. Rembrandt Peale, I prepared some pigments by mixing them with alumina while moist. When ground with oil, he found them to possess all the most valuable properties of the best colours. The tendency to separate from the oil, and the disagreeable property, which some colours possess, of becoming more fluid when an attempt to preserve them is made by immersing the pallet in water, disappear, after they have been ground with a small portion of alumina. The artist has it in his power, thus, to increase or diminish the fluidity of his paints, and to render them uniform.—Some pigments become valuable as glazing colours, as the Prussiate of copper, (Hatchette's Brown.) Vermilion and Naples Yellow, acquire new properties.

For printing from blocks, as in the manufacture of ornamental floor-cloths, it is often desirable to increase the fluidity of the paint, so as to prevent the dropping of small thread-like parts on the work, without causing it to spread. This may be accomplished, by adding a small quantity of whiting to the pigment while grinding; the artisan can then load his blocks with paint, and consequently give a thick coating to the print.

[*Silliman's Journal.*]

On a fine Scarlet Pigment for the Pallet. By the same.

WHILE prosecuting some experiments on the pigments employed by artists, I prepared a quantity of the bi-iodide of mercury, and gave it to Mr. R. Peale, requesting him to make some experiments on its working properties and permanency. This distinguished artist obligingly commenced them, but they were not finished, at the time he left this country. He found that it readily mixed with oil; combined with other colours, it gave delicate and beautiful shades, and exposed for weeks to the direct rays of a midsummer sun, it remained unchanged. These properties induce me to recommend it as an addition to the number of pigments among which the artist can make a choice.

An economical process for preparing this salt, consists in boiling a mixture of one hundred and twenty-five parts of iodine, and two hundred and fifty parts of clean fine iron filings, with one thousand parts of rain water, in an oil flask. When the brown colour of the liquid is succeeded by a light green, the clear fluid is decanted, and the residue washed with warm water; the washings being added to the green solution, two hundred and seventy-two parts of corrosive sublimate, dissolved in two thousand parts of warm water, are then added to the former liquor, and the resulting precipitate is afterwards washed and collected.

This salt, either in crystals, or in powder, presents two distinct and beautiful colours. If the precipitate, obtained as above, be heated in a small subliming apparatus, or in a glass tube, it melts and sublimes copiously, and the vapour is condensed in large transparent rhombic tables, of a fine sulphur yellow colour. These crystals are permanent in the air, and unaltered by the direct solar rays; but the slightest friction, or the contact of a fine point, is sufficient to alter their interior arrangement. The point of contact instantly becomes of a rich scarlet, and the same colour spreads over the whole surface of a single crystal, and extends to the most remote angle, if a group of crystals be the subject of experiment. This change of colour is accompanied by a sensible mechanical motion, so that a small heap of the crystals appears as if animated. An ordinary electroscope does not indicate the development of any electricity, nor is there any considerable elevation of temperature, during the change.

By gently warming the crystals supported on paper over the flame of a lamp, the original yellow coloured salt is obtained, and the same experiments may be often repeated; affording an elegant illustration of the connexion between colours, and the mechanical structure of bodies. Transparent, but minute, rhombic prisms of this salt, may be obtained by allowing a hot solution of it, in a solution of corrosive sublimate, to cool very gradually. [Ib.]

Singular Galvanic Trough.

M. WATKINS, philosophical instrument maker, of London, has constructed a Voltaic pile, with a single metal and without any liquid. It consists of from 60 to 80 plates of zinc, four inches square, fixed in a wooden trough, at a short distance from each other, having only a thin plate of air between them. One side of each plate is smoothed and polished, the other left rough. The polished faces are all turned in one direction. If one extremity of the pile be made to communicate with the ground, and the other with an electroscope, the latter immediately indicates one or other of the two electricities, according to the pole with which it is in contact. The humidity of the air favours the action of the pile, which may be considered as a kind of dry pile in which air is substituted for paper, and the two surfaces of the zinc do the office of two heterogeneous metals. It