

## HELIOGRAPHIC RESEARCHES,

BY M. NIEPCE DE SAINT-VICTOR.

M. NIEPCE DE SAINT-VICTOR has been pursuing with great diligence, and with corresponding success, his researches into those heliographic phenomena which appear to prove the actual absorption of light in all photographic results, and under all circumstances of exposure to the solar influences. The results obtained are so remarkable that we are induced to make an abstract of a communication from M. Niepce, which was read by M. Chevreul before the *Académie des Sciences*.

When papers which have been prepared with starch and soda, or potash, or cyanide of potassium, are exposed to sunshine, and then washed with the tincture of turmeric, a yellow image is produced over all the exposed parts—if washed with the blue solution of turnsole, it becomes red over those divisions.

If the ozonometric paper of M. Honzeau, composed of reddened turnsole and iodide of potassium, is exposed to light behind a negative photograph on glass, and if after exposure it is passed into water, the exposed parts become blue, the covered parts remaining red.

If a paper prepared with the nitrate and oxide of uranium and nitrate of copper is exposed to the sunshine under the same circumstances, the exposed parts become of an ashen gray. If a design is traced with a solution of those salts, and the paper be then exposed to sunshine, the image speedily appears. It is extraordinary that this image disappears in the dark, and it is revived again in the light.

M. Niepce has shown that under all circumstances papers covered with starch will, when exposed to solarization, acquire the power of decomposing the iodide of potassium, and of becoming coloured by a solution of indigo or of logwood, the unexposed portions remaining without these properties.

If two pieces of cotton, one wet and the other dry, be exposed to sunshine, and then in the dark, a solution of nitrate of silver be poured upon them, the silver will be quickly reduced on the moistened tissue, while the reduction takes place very slowly upon the dry cloth.

Vegetable earths are susceptible in a very great degree of acquiring this heliographic activity. If soil is taken from a depth in the earth, and kept in darkness, it produces no effect upon papers spread with chloride of silver, and extended above it. If this mould is spread on a plate of metal, and, after drying, it is exposed to the sun, one part being covered with a screen, it appears in the exposed parts to have undergone a very remarkable change—for if now a sheet of paper spread with chloride of silver is stretched over it *in the dark*, all that portion of the paper which is *opposite the soil which has been solarized will receive a strong impression*, none whatever being made by the unsolarized portion.

It is found by M. Niepce that all kinds of earth and clay are susceptible of acquiring very great activity, which is exerted in darkness, as in the above experiment. He proposes to continue during the approaching season his researches upon vegetation, and on the maturing of fruits under the influence of this absorbed power, which acts in all respects similarly to the chemical power of the solar rays.

It will be in the memory of many of our readers that M. Niepce found that a long cardboard tube, presented directly opposite to the sun, absorbed and retained a chemical power which could be employed in the production of photographic pictures. He has now demonstrated that, if, after exposure to brilliant sunshine, the tube is carefully closed with a cover, and then placed in a tin case—it will at the expiration of six months exhibit so much activity that photographic paper placed at the mouth of the tube is blackened, or, if it is placed with a negative on thin paper over it, that it will produce a photographic picture. The bottling of sunshine is here seen to be an established fact.

By the investigations of M. Niepce we learn many of the conditions under which the fading of colours, either of dyes or pigments, takes place. These appear to have an especial interest to M. Chevreul, whose papers on dyeing, and whose work on colours, are well known to our readers.

## THE WHITE DOE OF RYLSTONE.\*

We intimated, in the brief notice of this volume given last month, our intention to recur to it again, chiefly for the purpose of introducing a few examples

of the illustrations into our pages, which we have now the opportunity of doing. The poem does not afford so great a variety of pictorial subject as other writings of a somewhat analogous character, but Mr. Foster has made the best use of the materials placed in his hands. The principal portion of the



scenery connected with the poem lies in one of the most picturesque localities in England—the Valley of the Wharf, in Yorkshire, in which stand the fine ruins of Bolton Abbey; but there are also several other interesting places mentioned incidentally, such

as Durham Cathedral, Raby Hall, "Turking Dernbrook's pathless side," Rylstone Church, Norton Tower, Brancepeth Towers, Barden Tower,—these, with many beautiful "bits" of the Wharf scenery, and a few ideal views suggested by the poem, consti-



tute the landscape illustrations. The figure-subjects, strictly so called, are less numerous, but there are

enough of them to give variety to the illustrations, while Mr. Foster's pencil is quite as felicitous in rendering these as the landscapes.

\* THE WHITE DOE OF RYLSTONE; OR, THE FATE OF THE NORTONS. By W. Wordsworth. With Illustrations by Birket Foster and H. N. Humphreys. Published by Longman & Co., London.

Wordsworth's "White Doe of Rylstone" is, perhaps, far less extensively known than his "Excursion," and some of his short poems; yet it contains many passages of exquisite beauty and, of graceful