

and the images observed were two screens of white paper, illuminated by the complementary tints of color from a polarising apparatus. Their results are as follows:

"When the corresponding elements of the retina are impressed at the same time, alternations of activity and inertia of one of the eyes, show themselves generally at the commencement of the experiment, and there is perceived sometimes one of the tints, sometimes the other; but after an interval which varies very much in different individuals, there is seen only a single white circle.

"When the eyes are in some degree accustomed to this unusual kind of impressions, the tendency to recombination of the light is so great with some persons, that the screens may be passed through all the complementary tints which the apparatus affords, without producing any corresponding sensation of colors: the white light alone is seen.

"By diminishing the intensity of one of the colors while the other remains constant, the recombination still takes place; but the white disk appears more or less deeply tinged with the predominating colors.

"When the intensities of the two complementary rays are simultaneously varied, it is observed that the recombination takes place more easily at the commencement of the experiment, in proportion as their intensity is more moderate.

"Among the complementary colors which we have tried, the light blue and yellow are the most favorable for the experiment, and give the white immediately.

*Comptes Rendus de l'Academie des Sciences, January, 1849.*

After translating the above from the *Comptes Rendus*, we found that the same results had been arrived at in the same manner, by an ingenious mechanic of our city, Mr. Return Sheble. He had been struck with the singularity of the results given by Wheatstone's beautiful instrument, and constructed one for himself. In trying it about three years ago, it occurred to him that since two perspective drawings placed in it produced upon the optic nerve the effect of a single object in relief, if the objects were differently colored, the effect of a compound color would be produced upon the eye. He tried the experiment by painting two cards, one yellow, the other blue, but was astonished to see "one color, as it were, through the other." Upon repeating the experiment, however, about two months ago, with a red and green paint on each side of the stereoscope, he found that the impression produced was that of a dirty white. Red and yellow produced orange. His results strikingly confirm those above recorded.

Ed. F. I. J.

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*On the Magnetic Power of Iron and its Metallurgic Products. By M. A. DELESSE. (Second memoir. Extract by the author.)*

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The magnetic powers were determined by reducing the substance to powder, the grains of which were of equal size—and ascertaining the

weight of these powders which a given magnetic bar could sustain. The magnetic power was estimated as proportional to these weights. As in some substances, the magnetic power of certain substances is increased by pounding them in a mortar, they were all reduced to powder by rasping with files of equal coarseness, and the powder then passed through the same sieve.

The magnetic power of steel being found to be the same, from whatever source it came, and by whatever process it was made, this power was assumed as the standard, and called 100.

The differences obtained by Mr. Barlow in his experiments of the same kind, appear to be owing to the temper; in our experiments the steel was annealed so as to allow of rasping.

The magnetic power of pure iron, reduced by hydrogen and cooled in a current of this gas, is nearly the same as that of steel.

That of the common iron of commerce varies from 90 to 110; it is therefore also the same as that of steel, or at least varies but one-tenth from it.

The purity of the iron, and the method of refining it, (whether by charcoal or bituminous coal,) appear to exercise less influence upon its magnetic power, than the last operations to which it is submitted in its manufacture, or various circumstances of which it is impossible to give an account, the magnetic power of iron being very variable, and easily changed.

When the iron is slightly rusted, or intimately mingled with a certain quantity of foreign matters, its magnetic power diminishes notably. The same is true of cast iron, steel, &c.

The magnetic power of the nickel of commerce is at least equal to 35. In some experiments I found it greater, but always lower than that of iron, as M. Gay Lussac had already shown.

The magnetic power of the gray cast iron of Franche-Comté is about two-thirds of that of steel; but that of the mottled cast iron of Champagne is rather less.

Mr. Barlow also found that the ratio of the magnetic power of cast iron to that of steel, was about two-thirds.

The oxides which are formed during the making of bar iron by the English method, while it is passing between the rollers, have a variable magnetic power, the lower limit of which may be taken as 4; this magnetic power appears to be greater in proportion as the iron was at a lower temperature.

The forge-cinders, similar to the above, which are formed during the making of iron under the hammer, have a very unequal magnetic power: its lower limit is about 4, and its upper limit rose in our experiments to 22.

The magnetic power of the rich cinder, whether coming from the refining hearths of Franche-Comté, or from the bituminous coal burning puddling furnaces, is about from 2 to 3; it is immediately below that of the foregoing oxides.

The magnetic power of the slag of an ordinary blast furnace employed in the making of iron, is variable; that of the mass was found about 1, or even lower; but that of certain portions was as high as 20.