

to the abandonment of a concern, which promised to bring the linen manufacture of this country, to a pitch of unexampled excellence.

Our readers will, no doubt, have now arrived at the conclusion, that the Rev. Mr. Emmet has confined his improvements, to the mere *whitening*, and *finishing*, of the flax and tow; and that the previous operations of *steeping*, *braking*, and *hackling*, must all have been applied, before his operations could take place. We know not how flax may be treated in Yorkshire, but if *watered in running streams*, no doubt his whitening process may answer, as it did in the hands of Mr. Inglis, who had adopted that part of his practice, of *soaking the flax in weak alkaline ley*, in the year 1801. With regard to the application of *powdered charcoal*, Mr. Inglis found no difficulty in finishing the whitening of his flax by the ordinary practice of steaming; and Mr. Lee, after treating the flax, by his machinery, merely washed it in warm water, then in a weak soap ley, and laid it upon the grass to bleach and whiten. We well know the powers of charcoal, particularly *animal charcoal*, in bleaching vegetable matters; but, in case the flax had been steeped in *stagnant water*, as is the general and most offensive practice, and especially if it had been also covered with the *black mud* lying at the bottoms of the ponds, as is the present practice in Ireland, and whereby the *flax becomes dyed*, we very much question whether any thing short of the *powerful chemical means* actually employed in Ireland, and by which the quality of the flax so greatly suffers, could remove that dye.

[*Technical Repository.*]

On Neutralizing the Magnetism of Watches, and other Time Keepers.

By MR. ABRAHAM, of Sheffield.

From the Transactions of the Society for the encouragement of Arts, &c.

It is, I believe, generally understood by those who have not made the science of magnetism a study, that the fluid is *communicated* to steel bars, and other articles capable of possessing permanent active magnetism, by induction, friction with magnetic bars, &c. &c.

In my opinion, the very contrary is the fact. All ferruginous bodies possess the magnetic fluid, in a latent or inactive state, in proportion to their purity; this fluid may be brought into action, and concentrated, by various means; as position, friction, percussion, attraction, galvanism, electricity, &c. I believe that attraction is the most general cause, of the steel works in time pieces, becoming actively magnetical.

Valuable watches are frequently observed to keep very irregular time, from no visible cause, while the works remain in connexion; and also after they are separated, unless the steel works are tested, by plunging them into fine steel filings. From the minuteness and delicacy of those parts of a time-piece which are manufactured from steel, it has been considered, by those watch-makers with whom I

have conversed on the subject, to be almost an impossibility to deprive them of active magnetism, by any other means than that of heat.

When a balance, or verge, has been exposed to a sufficient heat to distribute the fluid, it becomes unfit for further use, till hardened, and polished; and even then, it is frequently spoiled; therefore, watch-makers prefer, either returning the watch in its magnetic state, or supplying new apparatus, which generally incurs an expense of six or seven shillings in a common watch, and a greater sum in proportion to the value of the works. In attempting to *distribute* (or, according to the general term, *take out*) the magnetism, in any part of the steel works of a watch, with a *very fine magnet*, by *touching* it in a contrary direction, or with a different polarity, it must be complete chance if the experiment succeeds; since the power applied, and the delicacy of the *touch*, must be in proportion to the activity of the magnetism, and the fineness of the part containing it; for, wherever the *finest* magnet last touches any part of a balance, it will leave a small concentration of magnetic power.

With a series of fine, and very delicate magnets, I always failed in *completely* neutralizing the fluid, by the touch. After spending much time without success, I was still determined to surmount the difficulty, if possible. Upon studying the first cause of all my trouble and disappointment, I was led to believe that I, very probably, might destroy the effect, by means similar to those which produced it; and in this I was not disappointed, for the experiment succeeded equal to my expectations. Time-pieces generally become actively magnetic, without being brought into contact with the agent that concentrates the fluid; but, according to the laws of magnetism, a polarity, contrary to that of the magnet presented to it, will always be found in the part rendered magnetical.

This proves that the fluid is put in motion, and concentrated, by *attraction*; present the contrary power in the agent (not in contact) to the same part of the machinery, and it will repel or re-distribute the fluid which was previously attracted, and if it be kept in that position, the least period of time beyond that which is necessary to neutralize the fluid, it will give contrary polarity, to the part subjected to the experiment.

For some time, I found a little difficulty in performing the experiment, satisfactorily, owing to the invisibility of the fluid; but I was relieved from this difficulty, by dipping the apparatus to be experimented upon, into fine steel filings, which rendered the situation of the active magnetism, visible.

Upon presenting a fine magnet to the part clothed with filings, at the distance of, from one inch, to one quarter of an inch, according to the power to be neutralized, it will immediately be perceived whether the polarity of the magnet be of the same kind as that in the apparatus: if so, the filings will gradually fall from the part, as the power becomes neutralized; when all the filings have fallen from the part submitted to experiment, dip it again into the filings, to prove whether it has acquired opposite polarity, by remaining too long in the vicinity of the magnet; if that be the case, present the contrary end of the

magnet at a distance proportionate to the power to be diffused. Very little practice will enable any person to deprive any part of the steel apparatus belonging to the time-piece, of active magnetism, in two or three minutes. I can generally perform the experiment in one minute, however magnetical the balance, or other part may be, that is to be deprived of this concentrated power.

On a new method of producing Landscapes, &c. by means of Black-lead dust. By Mr. GALPIN, of Charmouth.

Having, in common with, I believe, all admirers of drawing in black lead pencil, long regretted, that a material of such a natural and pleasing neutral colour, should be confined to the tedious process of producing broad gradations of shade, by means of a laborious repetition of lines or touches, I commenced, about two years ago, a series of experiments, with a view of producing a breadth of touch, and an effect, equal to oil painting, supposing it to be executed in a neutral tint, corresponding with the colour of black-lead; but I found, after indefatigable labour, that the granular separation of that material, when applied to paper, rendered it impossible, although I remained satisfied that it would be superior to any other material for the general purposes of drawing, if this impediment could be removed; and about two months ago, considering that I had heretofore only applied the material in its natural state, I resumed the pursuit, by reducing it to an impalpable powder, and using it with a brush, palette, &c.; the result has been the most complete success; and by a process exceedingly easy and simple, by which, every possible degree of shade can be produced, with the nicest uniformity of tint when necessary, and in less than a twentieth part of the time required in the ordinary manner; with an apparatus too which does not exceed the cost of one shilling, consisting of a small piece of fine muslin, filled with dark black-lead, reduced to fine powder, (and tied up similar to bladder colours used by artists,) which I have called a *shader*; a *palette*, made of thick card-board; and a *brush*, (such as is used by artists, in oil,) of medium size.

Process.—The *shader*, is rubbed two or three times on the palette, near one extremity, by which a small portion of the lead is sifted, as it were, through the muslin; the brush is passed round in the pulverized lead, and on some other part of the palette, to adjust the shade required; the brush is then applied to the paper, with a circulating motion, to produce a sky, or other expanse of shade. A sky which, before this invention, has taken me six or eight hours, I now execute in as many minutes.

The sea is produced by the pith of the common elder, the wood of which is cut away so as to expose the pith to the touch, which, on being applied to the palette, and then to the paper, produces a beautifully soft, and gradual touch.

From the beautifully uniform tint, produced by the brush and pul-