

The Action of Light upon Sulphide of Lead.

A paper, "On the Action of Light upon Sulphide of Lead, and its bearing upon the Preservation of Paintings in Picture Galleries," was read by Dr. D. S. Price at the meeting of the British Association. The author's attention was directed to this subject by observing that, in the cases in the South Kensington Museum which are painted with white lead, substances which emitted sulphurous vapors did not cause a darkening of the surface of the case, excepting where it was protected from the direct influence of light. A number of experiments was then tried as to the action of light upon sulphide of lead produced by the action of sulphureted hydrogen upon lead paint. A board of painted white with white lead was exposed for several hours to the action of sulphureted hydrogen, until the surface had acquired a uniform brown color. Plates of glass of different colors were then placed upon the painted surface, one portion being at the same time covered with an opaque medium, and another left entirely exposed. The board was then placed facing the light. The glasses employed were red, blue, yellow (silver), violet, and smoke-color glass. The results exhibited were, after an exposure of eight days, and showed that the parts of the board directly exposed to light were bleached; those protected by an opaque medium were not acted upon; while with the glasses of different colors intermediate effects were produced—those of the violet glass being most decided. Drying oils in conjunction with light rapidly bleach sulphide of lead, and boiled oil effects the bleaching still more rapidly. When water color is used bleaching takes place, but much more slowly than in the case of oil. After quoting authorities, stating that generally light was advantageous to the preservation of pictures, Dr. Price showed a striking illustration of this fact. He had a picture painted, and then exposed it to the action of sulphureted hydrogen, until it became sadly discolored, and, to all appearance, destroyed. Some strips of paper were laid across the picture, so as to cover some parts. The picture, thus partially covered, was exposed to light for a long time. The result, as shown at the meeting, was very curious indeed, the parts of the picture exposed being perfectly restored, while those protected by the paper remained still discolored. From his experiments he came to the conclusion that it was advantageous to have picture galleries well lighted, especially where, as in towns, the atmosphere was charged with sulphur compounds, and that it was quite a mistake to have curtains placed in front of pictures, with a view to their protection. In the course of his communication Dr. Price referred to the use of zinc paint for houses, and considered it likely to be acted upon, as the paint was rendered soluble by the acids contained in the atmosphere of towns.

Correction of Ship's Compasses at Sea.

M. Faye suggests to the Academy of Sciences at Paris, a method of determining at any time the error of the compass aboard a ship. This is done by attaching to the ship's log, which is suitably modified as to inclens and form, a compass so arranged that at any moment it may be stopped, and its direction thus registered. The log is towed in the wake of the ship, and at a sufficient distance to be out of reach of its magnetic influence, and when it has taken the true direction of the ship, which, if of proper shape, it will soon do, the compass is registered, hauled aboard, and read. The proposition assumes importance from the perpetual variation of the magnetic constants of iron vessels and sea, and the resulting impossibility of perfect correction of compasses.

In the course of his communication, M. Faye records a curious experiment, which is worthy of repetition and study: Dissolve in an acid, soft iron devoid of any magnetic coercive force, and then deposit it, by a galvano-plastic process, in a thin film upon a surface of a plate of copper, as is done in coating copper plates with iron, to give them greater endurance. This thin coating of iron, chemically pure, will possess so strong a coercive power that I have heated a plate thus prepared to the melting point of copper without destroying the magnetism which I had before given it.

The Compasses of the "Monadnock."

At the last meeting of the Franklin Institute, the Vice President announced that the two-turreted iron-

clad *Monadnock* would leave the Navy Yard in a few days for San Francisco, by the straits of Magellan. She will be part of the squadron under the command of Commodore John Rodgers.

As she will go from north to extreme south magnetic latitude, and through a difference of longitude in which the declination of the needle will vary greatly, the opportunity of making observations connected with the permanent and variable magnetism of the ship and the action of her compasses will be an uncommonly good one.

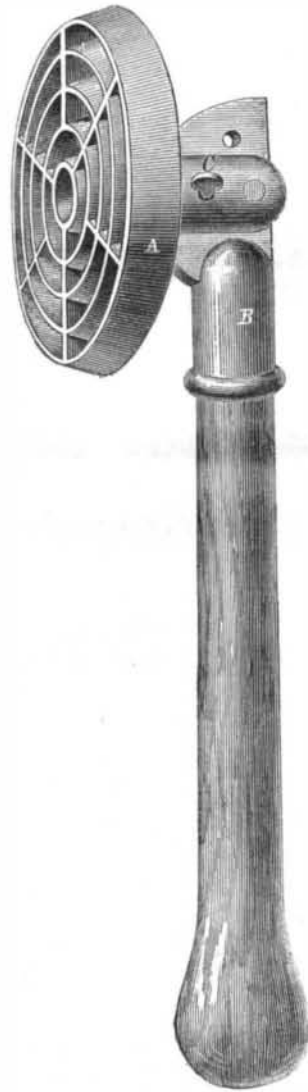
Prof. Harkness, of the Navy, late of the Naval Observatory, will go out in her, expressly for the purpose of making observations, which he may find necessary or possible.

The vessel will probably be swung at thirteen or more ports on the way, and careful shore observations will be made at the same points.

Altogether, results may be expected which will materially extend our knowledge of the magnetic behavior of these new iron vessels.

M'NEIL'S BEEFSTEAK POUNDER.

The engraving published herewith represents a utensil which housekeepers will appreciate. It is



designed to pound beefsteaks with, in order to crush such as may be refractory, and so tough as to defy the sharpest fangs. The instrument is made of cast iron, and consists of a circular grating, A, attached to a socket, B, the whole being secured to a wooden handle. The circular grating is fastened to the socket in a peculiar manner, and so that it may set either at right angles with the handle or turn up vertically, like a churn dasher. In this latter position it is convenient to mash vegetables, such as potatoes, turnips, squash, and the like. The manner of securing the head in either position is by a pin, C, as shown. This pounder does not mar the appearance of the steak, as many do, and no one could tell after the process that the steak had been beaten.

It was patented through the Scientific American Patent Agency, Oct. 31, 1865. For further information address John A. McNeil, Grand Rapids, Mich.

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