

Fine Arts.

THE FERROTYPED: HOW IT IS MADE.

There is a peculiar charm about the ferrotype, all its own, which is gaining recognition very rapidly among us. It has been the fashion to sneer at the picture on iron; but just as similar objections raised to the *carte-de-visite* have been abandoned by *dilettanti* of art, so will those urged against the ferrotype be less loudly and less confidently uttered ere long. So far from the ferrotype being inferior to the photograph from a negative, it may be safely said that in two important respects, at least, it is superior. The simplicity of the operation and the rapidity and ease with which the pictures are made, inspire the sitter with confidence, and do not give occasion for thought of the matter in hand. There is, in fact, a free-and-easiness about the whole business which induces a pleasant expression and naturalness of position. From an artistic point of view, these are no mean advantages. It is not, however, our intention to supply a *raison d'être* for the ferrotype, but to give some concise and simple directions of working and especially to strive for the introduction to the practice of the ferrotyper of these rules of art without which no branch of photography can attain to its full development.

For the "dark room," a place in, or immediately adjoining the atelier should be provided. Here the plates are collodionized, sensitized, and developed. For this a very small space is necessary, and waste-room is a disadvantage. In a moderately large gallery with two skylights, there might be constructed in the centre a dark room five feet square, and this would be ample accommodation. Such a room would not be in the way; and with a door on either side, entering from each light, would prove most convenient. The dark-room is fitted with a tank of sufficient capacity to hold the washing from the pictures made during a day; a shelf for the developer and developing utensils, one for dark slides, &c., and another for the plates, collodion, &c. The sensitizing bath, and that containing the potassium cyanide for clearing the picture, may stand well apart in the dry trough of the tank as will presently be explained. The tank, or trough, over which the plates are developed, is an important accessory to the gallery. It may, by a very simple arrangement, be made to save all the waste silver, and will soon pay for itself, and if properly used, contribute liberally toward defraying the expenses of the gallery. The capacity of the tank should be sufficient to meet the requirements of the busiest day's work. Let it be made of well-seasoned wood, rendered water-tight by a coating of asphalt; resting on the floor, it should rise to a convenient height to develop over. A tray, about four inches deep, may be formed of a board perforated with holes through which the water will run into the tank below, thus leaving the tray always dry. In the side of the tank, about nine inches from the ground, a pipe is inserted, the inner mouth of which is bent down to about three inches of the bottom of the tank. On the outside of the tank the pipe is fitted with a tap. At night, the contents of the tank are treated to a small quantity of saturated solution of copperas, for the purpose of precipitating the silver in solution. In the morning, before work commences the tap is turned on and the clear water run off, the tap being reversed when the tank is emptied to the inner mouth of the pipe *i. e.*, three inches of the bottom of the tank, so that the rich deposit may not be disturbed. By this means, during working, all the washing water, waste silver, old films, &c., may be caught and retained in the tank. The silver is precipitated at night (the waste developer assisting in the work during the day), and in the morning the supernatant water is run off, and the pipe closed against the escape of the silver-charged water, which begins to flow into the tank as development proceeds in the work of the day. A first-rate silver-saving apparatus may be made of an old felt hat, bound firmly over a hoop. By developing over this, the greater portion of the waste is caught, the rest being retained in the tank.

In the dry trough of the tank, the sensitizing bath on one hand—sufficiently removed from the influence of developer splashes—and the fixing bath on the other hand, may be placed. Plate-holders should have their place near the bath, and be kept closed, to guard them against dust, and the splashing of contaminating fluids. Over the tank should be fixed a tap placed in a convenient position for use in development. A separate cistern should be at the disposal of the ferrotyper, as a steady flow of water is necessary. The developer and pouring cups would naturally be placed conveniently to hand near the water-tap. The shelf for plates and the collodion pouring bottles should be fixed near the door, so that the operator should have the benefit of the light.

The dark chamber, lighted either by gas or a window glazed with orange glass, should be sufficiently illuminated to render working easy and comfortable. In the arrangement of every detail of the dark-room the convenience of the worker should be studied, as the work must be done with extreme rapidity. We have, therefore to secure the greatest facility of working with the most perfect sureness. The glass-room should have two lights divided by a partition; one side may be then used, generally for the ordinary styles of portraiture and interior compositions; the other for "rustic" pictures, groups, &c., so much time of preparation and clearing away being by this means saved. The light required for the rapid ferrotype process should be well-directed, unobstructed, free from reflexions, and of good quality. Quality, not quantity, remember! We have still to learn that the best pictures and the shortest exposures are obtained by skillfully-directed illumination—not by flooding the gallery with light. With an awful expanse of glass, top, side, and nearly all round, over a great portion of which blinds are always drawn, good effects can only be obtained by the exercise of great skill and after considerable experience of the light. The sooner the spare glass is boarded up the better. The easier the light is to manage, the finer are the results obtainable by it.

For ordinary portrait work, the sloping side light has many advantages over every other form of light. The illumination is better directed, there is less obstruction of sashes and overlapping sash panes, it is stronger, more easily kept clean, and the arrangement of necessary blinds is much more simple. The glazed portion, of nine feet wide by seven feet high, will give ample illumination for any style of picture. The glass should not be nearer the ground than thirty or thirty-six inches.

Two sets of spring blinds should be provided—one drawing down from the top, the other up from the bottom, and meeting in the centre. Two or three widths may be used—three to be preferred. By this simple arrangement any required effect of light and shadow may be secured.

The combination side and sloping top, which has been a long-established favourite, is a very serviceable light, but—especially for the ferrotyper—is not so useful as the sloping side, for the reasons already mentioned. The arrangement of blinds is the same, drawing down and up to the junction of the top and side lights. The top light should have sufficient slope to allow the rain to readily run off. Dark space, of at least three feet, must be left at each end of the light for backgrounds and accessories. This space cannot be dispensed with, as it is impossible to produce really artistic pictures if the light is allowed to wonder all round the sitter. It is also required that pictures may be made at either end of the gallery.

DISCOVERIES MADE BY ACCIDENT.

BY F. H. STAUFFER.

Valuable discoveries have been made, and valuable inventions suggested, by the varied accidents.

An alchemist, while seeking to discover a mixture of earths that would make the most durable crucibles, one day found that he had made porcelain.

The power of lenses, as applied to the telescope, was discovered by a watchmakers' apprentice. While holding spectacle-glasses between his thumb and finger, he was startled at the suddenly-enlarged appearance of a neighbouring church-spire.

The art of etching upon glass was discovered by a Nuremberg glass-cutter. By accident, a few drops of aqua fortis fell upon his spectacles. He noticed that the glass became corroded and softened where acid had touched it. That was hint enough. He drew figures upon glass with varnish, applied the corroding fluid, then cut away the glass around the drawing. When the varnish was removed, the figures appeared raised upon a dark ground.

Mezzotinto owed its invention to the simple accident of the gun-barrel of a sentry becoming rusted with dew.

The swaying to and fro of a chandelier in a cathedral suggested to Galileo the application of the pendulum.

The art of lithography was perfected through suggestions made by accident. A poor musician was curious to know whether music could not be etched upon stone as well as upon copper. After he had prepared his slab, his mother asked him to make a memorandum of such clothes as she proposed to send away to be washed. Not having pen, ink and paper convenient, he wrote the list on the stone with the etching preparation, intending to make a copy of it at leisure.

A few days later, when about to clean the stone, he wondered what effect aqua fortis would have upon it. He applied the acid,