

may know whether his prints will stick or not. The chalk must be dry; a little spread on to the glass plate and rubbed all over with a pad of cotton wool; with the silk handkerchief it is then dusted off again. Now, what is the appearance of the glass? Does the chalk adhere still to any parts, forming white patches? If it does, the glass still remains imperfect, and must be again washed, polished, and treated with the chalk. If the chalk is dry, and the cotton wool in the same state, the chalk should leave the glass by just drawing the handkerchief over it once or twice. When this is the case, you may squeegee your prints on with perfect safety, and if placed in a moderately warm room, they will not be long before they fall away from the glass with the required polish.

If they do not, however, all that is necessary is to insert a sharp knife under one of the corners, and they may be easily loosened. Above all things, make sure that the prints are perfectly dry before attempting to remove them. They often feel dry at the back, while the surface of the print, which is the most important part, and which, being furthest away from the air, is the longest in drying, is still damp.

Sometimes it happens that a portion of the picture is dry and will come away easily, but other parts stick and must be left to dry still more. This is always bad, as it leaves an ugly, inefaceable mark on the print.

When the print is apparently dry it is always better to gently warm both sides of the glass before attempting to remove.

After the pictures are taken off, the glass may be used again if simply polished and dusted over with chalk, and the chalk again removed. If any of the powder be left on the plate, it will be afterward noticeable on the surface of the print. It is certainly a fact that the glass plate, after having been used several times, improves considerably, and it soon becomes a matter of difficulty to make the prints stick, should such a thing be required.

Instead of French chalk, other substances, such as wax or oil, can be used. If the plate be coated with a weak solution of wax in alcohol, there will be no difficulty in removing the prints. A little oil—one drop will be sufficient, rubbed over the plate with a piece of flannel—will have the same effect. There is, however, a marked difference between the surfaces of prints surfaced in this manner and those done with chalk, which in reality has the effect of making the glass thoroughly clean. The latter, of course, are much more brilliant.

Gelatino-chloride of silver emulsion prints do not require the same amount of washing as albumen pictures; it should be short and thorough. By thorough is meant the continual change of water, not only by a running stream, but by continually emptying the dish in which they are washed. If the prints be allowed to remain for a great length of time in water, the gelatine film becomes slightly decomposed and softens. This will cause them to adhere tightly to the glass, no matter how carefully it has been previously prepared. Therefore, avoid prolonged washing, but do not err on the other side by washing too little, as the permanency of the prints will be seriously affected.

A few words might also be said upon the squeegee itself. The flat ones are undoubtedly the best, and

far superior to the new-fangled roller absurdities. The India-rubber should be evenly cut, and neither too hard nor too smooth. In squeegeeing, never bear too hard upon the print, as the film is likely to be injured. All that is required is to remove all the air between the film and the glass; by reversing the glass this can be easily seen.

As a final remark, I would say: Never attempt to use artificial heat for drying the prints upon glass, except, as already stated, to give a final warmth after the prints have apparently dried spontaneously. It must be remembered that the gelatine film is a soluble one, and the image is easily destroyed by heat. Even if rendered insoluble by an alum bath, the effect of heat will be to cause the film to adhere firmly to the glass plate.—*W. E. Woodbury, in the Photographic Art Journal.*

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## SULPHUR.

BY GEORGE L. BURDITT.

One of the important elements used in the arts and in manufactures is sulphur. It is a comparatively abundant substance, widespread, and was known to the ancients by the name of *brimstone*. Being an active chemical element, it is found in numerous combinations with other elements, and also in the free state. Most of the free sulphur used in commerce comes from Sicily, but it is also found in Iceland, Mexico, and South America in the free state, and always in the vicinity of volcanoes. When found in this state, it is mixed with earth, from which it must be separated. The separation is carried on by heat, which melts the sulphur, leaving the earth. The earth is first put into an iron pot and heated; the sulphur melts and is taken out and put into cold water, where it solidifies. The remaining earth contains a little sulphur, which is obtained by distillation. It is placed in earthen pots in a furnace, and the sulphur melts. The pots are so arranged that they connect with other pots outside the furnace which act as condensers, and into which the melted sulphur flows. There is an opening at the bottom of the condenser, through which the sulphur flows out into water, where it becomes solid. The sulphur is now in the rough or crude state, and must be purified. The process is carried on in a large brick furnace. The sulphur is put into an iron pot at some distance from the fire, where it melts and runs down through a pipe into another pot nearer the fire; here it boils and is vaporized. The vapor passes into a large brick chamber, upon the walls of which it condenses in the form of minute crystals. When in this state, it is known as flowers of sulphur. Gradually the walls become hot, and the sulphur melts, flowing down to the floor. At the bottom of the chamber there is an exit, through which the melted sulphur flows out into wooden molds, in which it receives the form of a stick or roll.

When sulphur is found in combination with other elements, it is separated by different means. Considerable quantities of it are obtained in England from iron and copper pyrites. In this process, a quantity of brush-wood is spread upon the ground, or upon a layer of broken pyrites. On this brush is placed