

the brilliancy of the negative. For intensifying I would recommend,—

Sulphate of iron	...	...	1 gramme
Citric acid	...	...	1 "
Water	...	...	100 grammes,

to which a few drops of a weak solution of silver is added. To judge of the intensity of a negative in the dark room is by no means an easy matter. If the chamber is illuminated through the medium of a yellow window the task is rendered more difficult, from the fact that the intensity of the daylight is continually varying; and on this account one is very liable to be led astray. For this reason I would recommend that the process of intensifying be carried on with the aid of a lamp or candle screened with yellow glass.

### CAUSES OF FOGGING.

BY JABEZ HUGHES.\*

"Fogging;" that is, a darkening of the film all over, directly the developing solution is applied.—This defect has several sources. It may exist in a small degree, only slightly obscuring the shadows of the picture; or it may be to so great an extent as to prevent its appearance. Fogging often troubles the young beginner, and as it arises from many causes it is often difficult to assign it to the right one. Sometimes deleterious vapours are the reason; as, the dark room being built over a stable, and filled with reeking vapour; the room being newly painted with a slow-drying paint; a leakage of gas; a bottle of ammonia with a badly-fitting cork or stopper. A remedy for any of the above is simply to remove the cause.

In extremely warm weather the developing solution is much more energetic, and fogging may thus arise from this increased energy: remedy, dilute it one-half, or double the quantity of acid. The following are, however, the most usual causes of fogging:—

Alkalinity of nitrate bath: remedy, addition of acetic acid till litmus paper is *slightly* reddened.

Extreme acidity of nitrate bath: remedy, addition of oxide of silver or ammonia until litmus paper is only slightly reddened.

Omission of acetic acid in the developer: remedy obvious.

Over-exposure in the camera: remedy obvious.

Diffused light in the dark room. If yellow calico be used, it has, perhaps become bleached, and must be replenished; or additional folds must be used. Sometimes chinks of unsuspected white light are the cause; if so, they must be stopped up.

Diffused light in the camera or the dark slide, admitted through a joint giving way, or an old screw-hole, or the parts of the camera not fitting: remedy obvious.

Nitrate bath made with impure silver, or bad water: remedy, add a few drops of saturated solution of bicarbonate of soda until the bath solution remains turbid after shaking; then expose it to the sun for a few hours and filter; acidify it if necessary.

Newly-mixed collodion will sometimes cause fogging; it then requires to be kept for a few days, when it may work clean; or it may be mixed with some older collodion, and may then be all right. Sometimes a little more acid added to the bath or the developer will be a remedy. If none of these aids are sufficient, then the collodion must be rejected.

When you make any change—such as having a new camera, a fresh nitrate of silver bath solution, a new quantity of developer, or another sample of collodion—you may be

able at once to suspect, and perhaps detect, the cause; for if some change occurs in the nature of the pictures which did not exist before, it is very probable that this fresh circumstance is directly connected with the changed character of the pictures. Therefore, whatever it is that has been newly introduced should be carefully examined, and very probably the cause of the fogging may be discovered. When, however, you have no such clue, you must adopt a systematic method for its discovery. The following is the plan:—

First, examine your dark room by covering your yellow window with some material that entirely excludes *all light*. Crevices and cracks admitting white light may then be seen that before were unnoticed, and some of them may have shone on the glass during its preparation, and caused fog. If these are found, they must be stopped up, and your annoyance may be over.

If these be not the cause, next suspect the window, for though it may admit only yellow light, it may not be yellow enough. Yellow materials become bleached, and require renewing, especially yellow calico. To test your window—and it is very important that you be quite certain on this point—proceed as follows:—Collodionize a plate as usual, and immerse it in the bath; then cover up your yellow window entirely, or leave only the smallest possible chink, so that you can just see what to do. Take your plate out of the bath and put it in the dark slide. Now remove the covering from the yellow window, and draw up the shutter of the dark slide *half way*, to expose *one half of the plate*; keep the plate to the light of the window for (say) five minutes, then replace the shutter, close up to the window as before, so as to exclude the yellow light, and proceed to develop your plate. Keep the developing solution on about the usual time that is required to produce a picture, for you will not be able to see what is going on; then wash and fix it. Now restore the light and examine the plate, and it must present one of the three following appearances:—Case A, the half exposed to the window is drab, and the half not exposed is quite clear and transparent; Case B, it has a drab deposit—in other words, fog—all over it; Case C, the plate is perfectly clear and transparent all over.

We shall examine each of these cases in succession. Case A shows that the yellow window is at fault, for half the plate exposed to it is fogged, but the other half is clear; therefore sufficient actinic light passes through the window to injure the plate. The yellow covering, if bleached, must be removed, or more coverings must be supplied, and a plate must be tried after each addition, until you have your window so yellow that a plate may be exposed five minutes without being fogged. Yellow glass sometimes allows light enough to pass through to fog the plate; such glass should be removed and a better sample put in its place. I have seen a piece of yellow-brownish glass, though very dark in colour, that admitted actinic light almost as freely as white glass. This is rare, but in photography you try all things, and only hold fast to that which is good. If the window be discovered to be the cause of your trouble, it must be covered with fresh calico, tammy, silk, paper, glass, or other yellow material, or it may be painted yellow; but in some manner the light must pass through a yellow screen in such a way that, while you are permitted to see your manipulations, your plate must remain without fog. You must have no rest until this is accomplished. This done, your fogging trouble is over, and you may proceed to work in comfort; for case A clearly showed the window was the cause of the fog.

It should be borne in mind, however, that the amount of protection that a yellow window gives to sensitive plates depends upon the quantity of light that falls upon the window. Plates may be fogged on a day of sunshine, and yet be perfect on a dull day. A yellow window with a western aspect may suit a morning light, and yet cause fog in the afternoon. When the window of the developing room is thus exposed to a variable light, it should be provided with an additional moveable yellow curtain, to be used when a stronger light than usual falls on the window.

\* Extracted, with permission, from the new edition of the "Principles and Practice of Photography," just out.