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RED DEPOSIT ON SHADOWS FROM INTENSIFYING.

The elevation of temperature during summer is very frequently accompanied by the presence, in the dark room, of one very annoying evil, amongst other minor troubles. From a number of communications recently received, we suspect the evil to be very rife at the present time. We refer to the prevalence of a form of fogging, or abnormal reduction, on the shadows of the negative. Everything appears to be working satisfactorily up to a certain point; the image develops perfectly, and is brilliant and clean: during the process of intensifying, however, the deepest shadows suddenly show some signs of deposit, and before it is possible to stop operations, and wash the plate, a decided deposit of a red or coppery hue has taken place.

This occurs chiefly when developing with iron and strengthening by means of pyrogallic acid and silver. It occurs both when the process of intensifying is applied before fixing, and after fixing. It differs from general or universal fog in occurring, not all over the plate, but in patches, on the deepest shadows first. We are not now about to inquire into the theory of the matter, which is somewhat perplexing, but rather to point to some of the causes which induce the trouble, and to suggest some remedies which we have found generally efficient for preventing the recurrence of the evil.

We may observe at the outset, that the occurrence of this deposit is generally much more common with a collodion giving a somewhat spongy or absorbent film, than with one giving a horny film, and that the deposit appears to be caused by the spongy film retaining, whilst intensifying, some traces of the preceding solutions which had been applied.

It occurs, as we have said, not unfrequently after development with iron, whilst intensifying before fixing. We are uncertain of all the causes which produce this; but we can mention some of them, and we can point out a remedy. Great heat is a common cause, and it is for that, as well as other reasons, desirable to keep the dark room as cool as possible during hot weather. The use of an old bath, or one containing organic matter, aids in causing this trouble. It is sometimes induced by the film having been imperfectly washed after developing with iron, before applying the pyro and silver: the remedy in that case is simple and obvious—it is more thorough washing before commencing to intensify. It is very often caused by the use of the bath solution for the purpose of adding to the pyro. This, especially when the bath is an old one, is a very common cause. We have always found that a twenty-grain solution of the purest nitrate of silver was the best for intensifying, and gave much more satisfactory results than when a few drops from the bath were added. Prolonged application of the pyro and silver, when density appears tardily, especially if there be any trace of chemical light in the room, will also cause this trouble.

Besides the remedies suggested in this brief enumeration of causes, there are one or two more. The first is not a universal remedy, but is, nevertheless, often largely preventive: it consists in the free use of citric acid in the intensifying solution of pyro and silver, instead of acetic acid. The usual proportion of citric acid used, is one grain to two of pyro. For this purpose the proportion may, in hot weather, be largely increased with advantage, in some cases to equal proportions of each. This will frequently remove or reduce

the tendency to this copper-coloured deposit. The remedy which has in our hands, however, been unfailing, consists in the application to the film, after developing with iron and washing, of a solution of iodine. This may consist of an alcoholic tincture of iodine added to water, until it is the colour of brown sherry, or iodine with an equal proportion of iodide of potassium dissolved in water, say one grain of each to an ounce of water. This solution is poured over the film, and in a few seconds washed off; the solution of pyro and silver is then applied, and in our hands, and in the hands of all whom we know to have tried the plan, it is found that the intensification proceeds satisfactorily without any tendency to the red deposit on the shadows, or any other form of fogging. The exact theory of this remedy we do not undertake to determine: we might hazard some conjectures, but we content ourselves at present by stating the fact.

This red deposit on the shadows also occurs whilst intensifying after fixing, and here we believe we can point more definitely to the cause. The evil occurs, as we have already stated, most frequently with a spongy and absorbent film, and we may add that when it occurs after fixing, it is generally, if not universally, when cyanide of potassium has been used for that purpose. It also generally happens when the intensifying is conducted in the light, or when the plate has stood in the light after fixing and before intensifying. From a careful consideration of our own experience, and the records of that of many others, we are convinced that this deposit, in many cases, arises from the retention in the absorbent film of some unsuspected traces of cyanide of potassium holding in solution cyanide of silver, which have been acted upon by light, and form the nuclei for reduction of what Mr. Malone would call "ruby silver," when the intensifying solution of pyro and silver is applied. We know that it will be urged by some that all their plates have been well washed, and yet this deposit has occurred; but the amount of washing required by an absorbent porous film may be very easily under-estimated. We have known a negative which had been apparently thoroughly washed, after fixing, with cyanide, manifest the presence of the latter salt in a curious and annoying manner. A solution of iodine has been applied as a preparatory step to intensifying with pyro and silver, and in a short time the half tones of the image have disappeared, indicating that the image was being gradually dissolved. Some traces of cyanide had remained in the film, but not sufficiently energetic to act upon the image of reduced silver, but so soon as any portion of it was converted into iodide of silver, the cyanide manifested its presence by dissolving the iodide so formed.

Cyanide of silver is very readily acted upon by light, and any traces remaining in the porous film, as we have described, and being acted upon by light, will readily become a source upon which abnormal reduction readily takes place. The preventive in this case, in addition to other precautions already named, is a very perfect washing after fixing, before applying the intensifying solution. An additional aid will be found, when this thorough washing has been given, in an application to the film, before intensifying, of the solution of iodine we have already referred to.

When the first trace of this deposit appears, the plate should be quickly washed, and by the judicious use of cyanide the deposit may be removed. If it be necessary to proceed further with the intensifying, it is important that a most thorough rinsing, and sometimes an application of the iodine solution, should be given before proceeding further with the