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COLLODIO-CHLORIDE OF SILVER PICTURES ON OPAL GLASS.

ABOUT twelve months ago some complaints were made in America of the fading of collodio-chloride prints on opal glass. At the time we gave a little attention to the matter, and very readily discovered the cause of the alleged fading: it was not due to the collodio-chloride of silver, but to an innovation of the gentleman in whose hands it occurred. He applied the collodio-chloride upon a substratum of albumen, for the double purpose of securing greater vigour, and of preventing the collodion film leaving the glass. It was the combination of silver and albumen which caused the fading. The fading element in the print which, in working out our collodio-chloride process, it had been our aim to eliminate, was here thoughtlessly and unnecessarily again introduced. We pointed out this source of fading at the time, and added that we had heard of no cases of fading in this country, and that, in our own practice, we had had no symptoms of such fading. After the lapse of twelve months more we can repeat the same statement of our own productions. We have in our possession several of the opal collodio-chloride prints produced in our earliest experiments between two and three years since which are quite unchanged. We have also paper prints produced still earlier, treated with no especial care, and which had the benefit of a blazing sun from a south window, which they were placed directly opposite, during the months of the Dublin Exhibition of 1865, which are as pure and fresh in colour as ever. All our experience points to the very great permanence of prints on collodio-chloride of silver.

A few months ago we heard incidentally of a singular experience of one of the first photographers in Manchester. He was delighted with the exquisite delicacy of collodio-chloride pictures on opal glass, but was afraid to send them out professionally, because, in repeated instances, they had faded, or became slightly yellow, in a few weeks, or, if we remember aright, in a few days. This puzzled us; but by dint of enquiry we arrived at the fact that he also used the substratum of albumen, and further learnt that he could not possibly work the process without it; that if he secured the print without losing the film during the toning, fixing, and washing, it inevitably split up in drying. This was so contrary to our experience and that of many others whom we knew, that it puzzled us sorely. At length we discovered the elucidation of the puzzle: we learnt incidentally that the opal glass which he always used was the flashed opal patent plate, *ground* or *smoothed, but not polished*; that as in many cases the pictures were intended for colouring to imitate ivory miniatures, the flat, dead surface was preferred. We then remembered that in some of our early experiments on opal glass we used it with a similar surface and with similar results, some of which we exhibited, with an explanation, at the North London Society. The explanation of the matter which occurred to us then was the fact that the film of collodion, when applied to the surface of ground glass, rested, when dry and somewhat contracted, upon innumerable small points instead of upon a continuous surface like that of polished glass, and whenever it was of a tense or contractile character, it readily split between the innumerable small points upon which it rested. The albumen substratum of course prevented this, and caused perfect adhesion; but it introduced the still more fatal evil of instability.

In our estimation it is undesirable to employ the smoothed but unpolished glass; but if it be used, a substratum of india-rubber, or other similar inert substance, would doubtless answer every purpose for preserving the film from either slipping or splitting. In our practice we have found that an edging of albumen before applying the collodio-chloride, or an edging of a solution of wax after applying it, has always prevented the film leaving the glass on toning, fixing, &c. We may further mention, in confirmation of our idea of the injurious action of the albumen, that in many cases where an edging of albumen was employed before applying the collodio-chloride, as a means of preventing the film from leaving the glass, the narrow edging where the albumen was present has faded or changed colour, whilst the collodio-chloride film pure and simple has remained unchanged. Some time after the complaint to which we have referred as having been made in America, we received a letter from Mr. J. Carbutt, a very skilful photographer in Chicago, in which he remarks:—

"I have had the same difficulty in collodio-chloride prints changing as spoken of by Mr. Wenderoth, and trace it clearly to the substratum of albumen; the remedy is simply to coat a quarter inch of the surface only all round. After various experiments in making collodio-chloride, and with a special view to use as little water as possible, I adopted the following, and have met with good success during six months past:—

Nitrate of silver	60 grains
Chloride of calcium	16 „
Citric acid...	20 „
Alcohol	5 ounces
Ether	3 „
Cotton	50 to 60 grains.

Pulverise and dissolve the silver in four ounces of the alcohol, pour into an eight-ounce bottle, and add the cotton and ether; next dissolve the chloride and citric acid in one ounce of alcohol, and add, in the dark room, to the collodion and silver."

An interesting article on the use of collodio-chloride of silver recently appeared in the *Photographisches Archiv*, in which the writer—Dr. Liesegang, we presume—recommends tartaric acid as giving richer results than citric acid. We have not yet had opportunity of trying it, but hope to do so shortly, and shall then report upon the results.