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M. MEYNIER'S NEW FIXING SALT.

THE application to photography of a salt which might replace hyposulphite of soda and cyanide of potassium, for fixing either negatives or positives, without presenting the inconveniences peculiar to these two substances, was an event too important to the photographic art, and for the permanency of pictures obtained by the aid of salts of silver, not to strongly excite the attention of all who are interested in the progress of science and who regret seeing so many excellent proofs rapidly fade.

The Marseilles Photographic Society, of which M. Meynier is an active member have submitted the new fixing agent to the necessary tests in order to prove its superiority over hyposulphite of soda, and M. Teisseire has made a report upon it, of which we give the substance as recorded in the *Moniteur de la Photographie*. The results are less satisfactory than could have been desired. We hope shortly to record the results of our own experiments in the matter.

The salt proposed by M. Meynier is the sulpho-cyanhydrate of ammonium, which he obtains by mixing the compound of sulphide of ammonium dissolved in water in presence of a porous body, such as sawdust.

Chemistry offers several other methods of preparing this salt. Its elements are, as its name indicates, sulphur, hydrocyanic acid and ammonium. It presents, therefore, some analogy, by its elements, with the three fixing agents hitherto employed in photography—hyposulphite of soda, cyanide of potassium, and ammonia.

Like them, it possesses the property of completely dissolving the chloride, iodide, and bromide of silver, and all identical compounds, and particularly, according to M. Meynier, the sulpho-cyanide of silver which may be formed during the fixing of proofs. M. Meynier states that the new salt is not poisonous like the cyanide of potassium. These properties induced him to employ it for fixing negatives and positives.

The sulpho-cyanhydrate of ammonium dissolves the argentine compounds employed in photography very readily, and its most remarkable property with respect to the permanency of the pictures is, that notwithstanding the presence of sulphur among its elements, it does not precipitate that element under the action of acids, which is the primary cause of the fading of proofs fixed with hyposulphite of soda.

To verify this property a saturated solution of hyposulphite of soda was placed in one test glass, and a saturated solution of sulpho-cyanhydrate of ammonium in another. A drop of acid added to the solution of hyposulphite of soda caused an abundant white precipitate of sulphur. The solution of sulpho-cyanhydrate of ammonium similarly treated, on the contrary, remained limpid. This limpidity was not changed under the action of a very strong proportion of acid. The liquid only became feebly coloured yellow red. From these facts it evidently results that the sulpho-cyanhydrate of ammonium does not precipitate sulphur under the influence of acids, and admitting that some sulphur must be liberated, soluble compounds only are formed, which will be removed by washing, and leave no sulphur in the substance of the paper.

The next experiment was to ascertain whether the new fixing salt could be applied indifferently to albumenized, and to simply salted paper; the results were stated as follows:—

1st. *Salted paper.*—We believe the new salt to be perfectly applicable to proofs on salted paper, sensitized either in the bath of 15 per cent. of nitrate, or of 5 per cent. of ammoniacal nitrate. The faces come well out without losing much vigour in the fixing. The proof remains perfectly pure in the whites, without taking a yellow tint. (N.B. During the fixing, the following phenomenon takes place: after a few minutes' immersion in the sulpho-cyanhydrate of ammonium bath, the proof becomes covered with a white veil, which is formed by sulpho-cyanide of silver. This veil ultimately disappears, especially if the proof is passed to another new bath, when the picture soon resumes all its vigour).

2nd. *Albumenized paper sensitized in an ammoniacal nitrate bath.*—We have not obtained good results by fixing proofs upon ammoniacal paper, by means of sulpho-cyanhydrate of ammonium. The ammoniacal nitrate solution itself removes some albumen from the paper, and consequently its gloss; the sulpho-cyanhydrate finishes the work, and but very little albumen remains on the proof. The colour given by the toning disappears, and the picture assumes a tint resembling that of proofs fixed in hyposulphite of soda and not toned. The albumen having for the most part disappeared, the pictures have very disagreeable dull tones, with no depth, and the whites become very yellow.

3rd. *Albumenized paper sensitized on an ordinary nitrate bath of* 15 *to* 20 *per cent.*—The sulpho-cyanhydrate might be employed to fix proofs on paper with 15 to 20 per cent. of nitrate, if we could prevent the paper turning yellow under its influence. The albumen remains intact. The tones given by the toning bath are well preserved if we take care to force them a little. The picture appears perfectly clear when viewed by transmitted light, but notwithstanding the most careful washing, it becomes yellow when dry. The question arises, Is this effect caused by the presence of sulphur in the elements of the new fixing salt, or by the albumen itself? But the fact is undoubted. We have, in presence of M. Meynier, made comparative experiments with hyposulphite of soda, and the new salt. Some stereoscopic pictures were cut in two, and one half fixed in hyposulphite of soda, and the other half in sulpho-cyanhydrate of ammonium; in the first, the whites remained pure, in the second, they yellowed considerably. Experiments made upon various qualities of paper, gave similar results.

With respect to the permanence of the proofs obtained by this process, time alone can show, if they be more durable than those fixed by hyposulphite of soda.

In conclusion, we think that the sulpho-cyanhydrate of ammonium may be employed in photography for fixing collodion negatives and positives upon salted paper, but that it