

ART. XVI.—*On Action of Light on Allotropic Silver*; by
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SINCE my last communication to this Journal I have obtained the following results:

1. It was mentioned in that paper that the red gold-colored modification of silver was converted into a bright yellow-colored form by the action of light. Continued exposure seems to produce little further change so long as the substance is dry. But if the paper on which the silver is extended, is kept moist by a wet pad, with three or four days of good sunshine the change goes on until the silver becomes perfectly white, is apparently changed to normal silver:—water, alone, tends to darken this form of allotropic silver, accordingly the portion of the paper that was protected for comparison, darkened, showing that the whitening effect was due wholly to light.

It thus appears that light can convert yellow or red-yellow allotropic silver to white.

2. Some pieces of very bright blue-green modification were exposed to light and with about one day's bright sunshine, they passed to a pure bright metallic gold-color.

It appears therefore that light can cause the blue-green modification to pass to the gold-yellow.

This change only occurs with a very brilliant form of the bluish-green substance which is obtained with a quick short washing. Specimens slowly and very thoroughly washed which when brushed over paper gave a more mat color, did not yield this result but became brownish, as described in the July number of this Journal. Nor can this result be obtained with the soluble form of allotropic silver described in the June number of this Journal.

Light therefore can change the bluish green to the yellow modification, and this last (with the aid of moisture) to white normal silver. The silver thus obtained is pure white, lustrous and metallic, resembling silver leaf. Organic compounds of silver reduced by light give gray or black silver devoid of luster.

* The pad used was of unbleached muslin which was boiled several times with distilled water to remove everything soluble before use.