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CHEMICAL CHANGES

PRODUCED BY THE SOLAR RAYS ON SOME PHOTOGRAPHIC PREPARATIONS EXAMINED.

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1. Being desirous of ascertaining, with more correctness than has hitherto been done, the nature of the changes produced by solar radiations upon the various preparations used for photographic purposes, I instituted a short time since, a series of experiments with this object in view. Commencing with the salts of silver most commonly used in this new and beautiful art, it is my intention to proceed with all organic as well as inorganic bodies, which the researches of late years have shown us undergo a chemical change by exposure to sunshine. This inquiry must necessarily extend itself over a considerable period, but by confining myself strictly to the examination of one compound at a time, I hope to be enabled gradually to place the entire subject in a more satisfactory light than it is at present. The results I have already obtained are in the highest degree satisfactory; and as they have reference particularly and solely to the oxide, nitrate and chloride of silver, I see no good reason for withholding their publication. As the examination of the other preparations is completed, I shall, from time to time, forward my results to the editors of the Philosophical Magazine.

2. During the past five or six years, the attention of some of the most eminent philosophers of Europe has been turned to the subject of photography. The result has been the discovery of a great number of most interesting processes; and in some few cases the chemistry of the changes produced by actinic power has been examined and explained. This has, however, so rarely been the case, that I shall offer no apology for proceeding anew over the entire subject; and I hope in every instance, where I do not acknowledge the previous labors of other enquirers, that the omission will be set down to its true cause—my ignorance of those labors—and not attributed to any desire on my part to arrogate to myself the merit of any discovery which is fairly due another.

OXIDES OF SILVER.

3. To a weak solution of nitrate of silver in distilled water, a very dilute solution of pure baryta was added, and the resulting precipitated oxide of silver received upon plates of glass. When the whole of the oxide had fallen down, the fluid was removed very slowly by means of a small glass siphon, so that the powder on the glass plates might not be disturbed. Without being removed from the vessel in which the precipitation was effected, the oxide was dried at a very moderate heat, and there resulted exceedingly thin films of the