this it might perhaps be imagined, that the lights are formed by the amalgamation of the silver with mercury, and the shadows by the sulphate of silver formed by the hyposulphate. M. Arago, however, formally declared the positive inability of the combined wisdom of physical, chemical, and optical science, to offer any theory of the delicate and complicated operations, which might be even tolerably rational and satisfactory.

The picture produced is washed in distilled water, to give it that stability which is necessary to its bearing exposure to light, without undergoing any further change.

After this statement of the details of M. Daguerre's discovery, M. Arago proceeded to speculate upon the improvements of which this beautiful application of optics was capable. He adverted to M. Daguerre's hopes of discovering some further method of fixing, not merely the images of things, but also of their colors; a hope based upon the faith that, in the experiments which have been made with the solar spectrum, blue color has been seen to result from blue rays, orange color from orange, and so on with the others. Sir John Herschel is sure that the red ray alone is without action. The question arose, too, whether it will be possible to take portraits by this method? M. Arago was disposed to answer in the affirmative. A serious difficulty, however, presented itself:—entire absence of motion on the part of the object is essential to the success of the operation, and is impossible to be obtained from any face exposed to the influence of so intense a light. M. Daguerre, however, believes that the interposition of a blue glass would in no way interfere with the action of the light on the prepared plate, while it would protect the sitter from the action of light. The head could easily be fixed by means of a supporting apparatus. Another more important desideratum is, the means of rendering the picture unaltered by friction. The substance of the picture executed by the Daguerreotype is, in fact, so little solid--is so slightly deposited on the surface of the metallic plate, that the least friction destroys it, like a drawing in chalk: at present it is necessary to cover it with glass.

From his numerous experiments on the action of light on different substances, M. Daguerre has drawn the conclusion that the sun is not equally powerful at all times of the day, even at those instants when his height is the same above the horizon. Thus, more satisfactory results are obtained at six in the morning than at six in the afternoon. From this, too, it is evident, that the Daguerreotype is an instrument of exquisite sensibility for measuring the different intensities of light, a subject which has hitherto been one of the most difficult problems of Natural Philosophy. It is easy to measure the intensity between two lights viewed simultaneously; but when it is desired to compare daylight with light produced in the night—that of the sun with that of the moon, for example—the results obtained have had no precision.

"The preparation of M. Daguerre is influenced even by the light of the moon, to which all the preparations hitherto tried were insensible, even when the rays were concentrated by a powerful lens. In physics, M. Arago indicated some of the more immediate applications of the Daguerreotype, independently of those which he had already mentioned in Photometry. He instanced some of the most complex phenomena exhibited by the solar spectrum. We know, for example, that the different colored rays are separated by black transversal lines, indicating the absence of these rays at certain parts; and the question arises whether there are also similar interruptions in the continuity of the chemical rays? M. Arago proposes, as a simple solution of this question, to expose one of M. Daguerre's prepared plates to the action of a spectrum, an experiment which would prove whether the action of these rays is continuous or interrupted by blank spaces.