bromine, after they had been separated from the silver.*

The action of light, which can be destroyed by the red, orange, or yellow rays, does not determine the decomposition, which would require an intensity 3000 times greater. It is the kind of action produced with an intensity 3000 time less, giving the affinity for mercury, which is completely destroyed by the red, orange or yellow rays. It seems, therefore, that I was right in saying that there was no decomposition of the compound during the short action, which is sufficient to give the affinity for mercury, or in ascribing the formation of the image only to that affinity, while light, or the chemical rays which accompany it, communicate to the surface the affinity for mercury, and the red, orange, or yellow rays withdraw it. I must remark here a singular anomaly, viz., that when the sensitive surface is prepared only with iodine without bromine, the red orange or yellow rays, instead of destroying the action of white light, continue the effects of decomposition or of affinity for mercury.

This phenomenon was announced first by M. Ed. Becquerel and immediately after M. Gaudin found that not only these rays continue the action by which mercury is deposited, but that they develope, without mercury, an image having the same appearance as that produced by mercurial vapor. M. Gaudin not knowing the fact of the white coating, which is the result of the decomposition by the action of light, could not explain the cause of the image brought out under the influence of the yellow rays.

I have observed that the iodide of silver without bromine is about 100 times more sensitive than the bromo-iodide of silver to the action of light, which produces the decomposition of the compound forming the white precipitate of silver, while it is 100 times less sensitive for the effect which gives the affinity to mercury; another reason for supposing that the two actions are different. It may be that in the case of the iodide of silver alone, the decomposition being more rapid and the affinity for mercury slower than when bromine is added to the compound, the red, orange, and yellow rays, having to act only upon a commencement of decomposition, have the power, by their own photogenic influence, to continue the decomposition when it has begun. This is the explanation of the development of the image under red, orange, or yellow glasses, according to M. Gaudin's discovery; but in the case of the bromo-iodide, the red, orange, and yellow rays have to exert their action on the affinity for mercury, begun a long time before the decomposition of the compound, and they have the property of destroying that affinity.*

Thus it would appear that all the rays of light have the property of decomposing the iodide of silver in a longer or shorter time, as they have that of producing the affinity for mercury, on the bromo-iodide of silver, with this difference, that on the former compound the separate actions of the several rays continue each other, and on the second compound those separate actions destroy each other. We can understand that in the first case all the rays can operate the same decomposition, and that in the second the affinity for mercury, when given by one ray, is destroyed by another. This would explain the various phenomena of the formation of the two different deposits I have described, and also explain the anomaly of the continuation of the action of light by the red, orange, and yellow rays, according to M. Ed. Becquerel's discoveries on the

* I have shown that the iodine does not escape from the silver plate, but that, as it is liberated from its combination, it attacks an under surface of the metal.—R. H.

* Being disposed to render the chemical action of the sun's rays as due to a principle, Actinism, distinct from light, I would rather refer the curious phenomena noticed by M. Claudet as due to light, and consequently a function of all the rays, rather than a property due to any particular color.—R. H.