studying, comparatively and simultaneously, the action of the spectrum upon the iodized plate, immersed by halves in two very dissimilar media—in water and air for example. Mr. Edmund Becquerel was kind enough to follow out this idea.

The following is the letter which he wrote to me on the subject, dated 25th November, 1842.

"When you had the kindness to present to the Academy of Sciences, in the month of June last, my memoir on the constitution of the solar spectrum, you were good enough to suggest to me an experiment which was yet to be made, in order to ascertain if when a substance, impressionable by the action of the solar rays, is immersed in a medium different to the air, the change of the velocity of the solar rays, at their passage through this medium, would not alter the position of the lines, or transversal striæ of the spectrum of the chemical rays.

"I immediately applied myself to making these experiments, and began by using water as a new medium. My departure for the country forced me to interrupt them. I had intended to continue them, on my return, before making known the result; but the bad state of the season has not allowed me to realise my project. However, I have the honor to address to you the result of a double experiment which I have made, as well as the description of the process which I followed.

"I made use of a small crystal vessel, with flat sides, and of a plate prepared after Mr. Daguerre's manner, placed vertically in the vessel, in such manner that its surface was parallel to the front of the vessel. In the experiment, the distance between the iodized plate and the front of the vessel was one centimètre. I then introduced into the camera a bundle of solar rays through a narrow crevice made in the shutter.—These rays were refracted through a very pure flint prism, in front of which was placed a lens with long focus, so as to obtain, by projection, a solar spectrum with all its striæ. When this result was obtained, I placed the vessel in the direction of the refracted ray, so that the spectrum imprinted itself horizontally with all its striæ on the iodized plate, and so that the violet rays entered normally at the front of the vessel. Before commencing the experiment, water was poured into the crystal vessel until its level cut the image of the spectrum longitudinally into two equal parts.

"After the action had lasted one or two minutes, the plate was withdrawn and exposed to the mercurial vapors; the image of the spectrum was seen on it from the limit of the green and blue to much beyond the extreme violet; and, as I stated in the Memoir, this image had all its striæ similar to those of the luminous spectrum, for those portions possessing the same refrangibility. No very sensible difference can be perceived between the image of the spectrum on that part of the plate which remained in the air and that immersed in the water. The striæ of these two portions of the spectrum seem to be a very exact prolongation one of the other, except, however, in the extreme portions of the chemical spectrum, on the right and on the left, where the striæ of the image produced in the water seem to narrow a little among themselves. It appears to me that this must be attributed to the refraction of the oblique rays.

"This experiment tends to show that the nature of the medium in which is immersed the substance chemically impressionable under the action of the solar rays, does not modify their action, so that the impression of the solar spectrum upon that substance always produces the same lines, and at the same places.

"When the weather will permit, I intend to resume these experiments, to vary them, and I may, perhaps, succeed in obtaining more conclusive results.

"I have the honor to be, &c."