

its light and heat. To prove this, if the author analyzes the external scales of the heated iron, he will find them contain a calx or oxyde of iron, by the absorption of the oxygen from the atmosphere. Moreover, if light were only heat condensed, how is it that the light of the moon gives no heat at all to the most delicate thermometer? So also when the current is stopped in the telegraph offices, the current absorbs oxygen from the air, and a spark is produced.

In page 194, the author, although he has all along contended that heat, or caloric, and light are identical with electricity, here avows, that "the *essence of electricity* he never attempted nor proposed to explain." There is, then, something more in electricity than either heat or light.

In the sixth edition of my work, in page 19 of the Appendix No. 2, I have given my idea of electricity, namely, "that it consists of heat and light combined together in some unknown and unique manner; and that the energy and violence of its effects are occasioned by the mutual expansive efforts of the heat and light to disengage themselves." In fact, I conceived that latent electricity exists in bodies in a condensed state; for we now know, that some of the gases (the carbonic acid, for instance,) can be condensed by pressure to a solid state, but its energy and power to recover the gaseous state are so great, that when the pressure was removed, as shewn by Professor Liebig, in his "Familiar Letters,"—"it burst the condensing apparatus, and killed the operator:" so I conceived it might be the case with condensed heat and light in electricity. I must acknowledge, however, that on contemplating the action of electricity in the telegraph wires, I am much inclined to believe, that there is some much more energetically powerful ingredient in electricity, than either heat or light; some gaseous power of such vehement action, that it has eluded as yet