of the two kinds of electricity. This also was made by Dufay. "Chance," says he, "has thrown in my way another principle more universal and remarkable than the preceding one, and which casts a new light upon the subject of electricity. The principle is, that there are two distinct kinds of electricity, very different from one another; one of which I call *vitreous*, the other *resinous*, electricity. The first is that of glass, gems, hair, wool, &c.; the second is that of amber, gum-lac, silk, &c. The characteristic of these two electricities is, that they repel themselves and attract each other." This discovery does not, however, appear to have drawn so much attention as it deserved. It was published in 1735; (in the Memoirs of the Academy *for* 1733;) and yet in 1747, Franklin and his friends at Philadelphia, who had been supplied with electrical apparatus and information by persons in England well acquainted with the then present state of the subject, imagined that they were making observations unknown to European science, when they were led to assert two conditions of bodies, which were in fact the opposite electricities of Dufay, though the American experimenters referred them to a single element, of which electrized bodies might have either excess or defect. "Hence," Franklin says, "have arisen some new terms among us: we say B," who receives a spark from glass, "and bodies in like circumstances, is electrized *positively*; A," who communicates his electricity to glass, "*negatively*; or rather B is electrized *plus*, A *minus*." Dr. (afterwards Sir William) Watson had, about the same time, arrived at the same conclusions, which he expresses by saying that the electricity of A was *more rare*, and that of B *more dense*, than it naturally would have been.[4] But that which gave the main importance to this doctrine was its application to some remarkable experiments, of which we must now speak.

Electric action is accompanied, in many cases, by light and a crackling sound. Otto Guericke[5] observes that his sulphur-globe, when rubbed in a dark place, gave faint flashes, such as take place when sugar is crushed. And shortly after, a light was observed at the surface of the mercury in the barometer, when shaken, which was explained at first by Bernoulli, on the then prevalent Cartesian principles; but, afterwards, more truly by Hawkesbee, as an electrical phenomenon. Wall, in 1708, found sparks produced by rubbing amber, and Hawkesbee observed the light and the *snapping*, as he calls it, under various modifications. But the electric spark from a living body, which, as

[4] Priestley, p. 115. [5] *Experimenta Magdeburgica*, 1672, lib. iv. cap. 15.