reflected is so small that the inevitable errors might completely disguise the whole difference in the two opposite positions. When Prof. Forbes, of Edinburgh, (in 1834,) employed mica in the like experiments, he found a very decided polarizing effect; first, when the heat was transmitted through several films of mica at a certain angle, and afterwards, when it was reflected from them. In this case, he found that with non-luminous heat, and even with the heat of water below the boiling point, the difference of the heating power in the two positions of opposite polarity (parallel and *crossed*) was manifest. He also detected by careful experiments,[29] the polarizing effect of tourmaline. This important discovery was soon confirmed by M. Melloni. Doubts were suggested whether the different effect in the opposite positions might not be due to other circumstances; but Professor Forbes easily showed that these suppositions were inadmissible; and the property of a difference of *sides*, which at first seemed so strange when ascribed to the rays of light, also belongs, it seems to be proved, to the rays of heat. Professor Forbes also found, by interposing a plate of mica to intercept the ray of heat in an intermediate point, an effect was produced in certain positions of the mica analogous to what was called *depolarization* in the case of light; namely, a partial destruction of the differences which polarization establishes.

Before this discovery, M. Melloni had already proved by experiment that heat is *refracted* by transparent substances as light is. In the case of light, the *depolarizing* effect was afterwards found to be really, as we have seen, a *dipolarizing* effect, the ray being divided into two rays by *double refraction*. We are naturally much tempted to put the same interpretation upon the dipolarizing effect in the case of heat; but perhaps the assertion of the analogy between light and heat to this extent is as yet insecure.

It is the more necessary to be cautious in our attempt to identify the laws of light and heat, inasmuch as along with all the resemblances of the two agents, there are very important differences. The power of transmitting light, *the diaphaneity* of bodies, is very distinct from their power of transmitting heat, which has been called *diathermancy* by M. Melloni. Thus both a plate of alum and a plate of rock-salt transmit nearly the whole light; but while the first stops nearly the whole heat, the second stops very little of it; and a plate of opake

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[29] *Ed. R. S. Transactions*, vol. xiv.; and *Phil. Mag.* 1835, vol. v. p. 209. Ib. vol. vii. p. 349.