

# THERMOTICS PROPER.

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## CHAPTER I.

### THE DOCTRINES OF CONDUCTION AND RADIATION.

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#### *Section 1.—Introduction of the Doctrine of Conduction.*

**B**y *conduction* is meant the propagation of heat from one part to another of a continuous body; or from one body to another in contact with it; as when one end of a poker stuck in the fire heats the other end, or when this end heats the hand which takes hold of it. By *radiation* is meant the diffusion of heat from the surface of a body to points not in contact. It is clear in both these cases, that, in proportion as the hot portion is hotter, it produces a greater effect in warming the cooler portion; that is, it *communicates more Heat* to it, if *Heat* be the abstract conception of which this effect is the measure. The simplest rule which can be proposed is, that the heat thus communicated in a given instant is proportional to the excess of the heat of the hot body over that of the contiguous bodies; there are no obvious phenomena which contradict the supposition that this is the true law; and it was thence assumed by Newton as the true law for radiation and by other writers for conduction. This assumption was confirmed approximately, and afterwards corrected, for the case of Radiation; in its application to Conduction, it has been made the basis of calculation up to the present time. We may observe that this statement takes for granted that we have attained to a measure of heat (or of *temperature*, as heat thus measured is termed), corresponding to the law thus assumed; and, in fact, as we shall have occasion to explain in speaking of the *measures* of sensible qualities,