

about nine times as often as is required to produce the same refrigeration in air. The principal cause of refrigeration is not, therefore, the contact of the ambient medium, but the expansive force which animates the parts of heat and fire, which drives them out of the bodies wherein they reside, and impels them directly from the centre to the circumference.

By comparing the time employed in the preceding experiments to heat the iron globes, with that requisite to cool them, we find that they may be heated till they become white in one sixth part and a half of the time they take to cool, so as to be held in the hand, and about one fifteenth and a half of that to cool to actual temperature, so that there is a great error in the estimate which Newton made on the heat communicated by the sun to the comet of 1680, for that comet having been exposed to the violent heat of the sun but a short time, could receive it only in proportion thereto, and not only in so great a degree as that author supposes. Indeed, in the passage alluded to, he considers the heat of red-hot iron much less than in fact it is, and he himself states it to be, in a *Memoir*, entitled, *The Scale of Heat*, published in the *Philosophical Transactions* of 1701, which was many years after the