heating the intervening air, as may be shewn by the fact that the sensation of heat ceases when a screen is interposed.

The motion of radiant heat is so enormously rapid (probably the same as that of light), that the diffusion of heat by radiation would produce an almost instantaneous balance of temperature throughout nature, if it were not that heat leaves and enters bodies at a comparatively slow rate.

The rate with which a body of a given temperature radiates heat is much the same as that with which it absorbs heat radiated from other bodies, and this depends much on the nature of the surface. Lampblack radiates heat quickly, and the metals slowly.

The rate with which a body cools by radiation throughout its mass, apart from the effect produced by other bodies, depends not only on the rate with which heat leaves the surface, but also on the rate with which its internal heat reaches the surface, *i.e.*, on its internal conductivity. The actual rate at which a body cools depends on the amount by which its losses of heat by radiation exceed the gains obtained by absorbing the heat radiated from other bodies.

(72) Specific Heat and Capacity for Heat.—The quantity of heat which must be communicated to or abstracted from a given weight of a substance to produce a given change in its temperature, differs in different substances. Of two bodies of different material but of equal weight, that which requires more heat to effect a given change in its temperature is said to have a greater "specific heat," or a greater "capacity for heat."

The heat necessary to add a certain temperature to water greatly exceeds that required for giving the same increase of temperature to an equal weight of iron or of mercury.

Thus the heat by which the temperature of 1 lb. of iron is increased 1°, is only about 0.11 of that necessary to add 1° to the temperature of 1 lb. of water; or, as it is termed, the specific heat of iron as compared with water is about 0.11.

The specific heat of mercury is		.....	0.033
"	"	alcohol about	0.6
"	"	ice about	0.5
		aqueous vapour about	0.5

A body which has a large specific heat requires a proportionately longer time to acquire the same change in its temperature than one of a small specific heat; hence alcohol, whose specific heat or capacity for heat is nearly 20 times that of mercury, is vastly more slow than mercury in taking up the temperature of the surrounding medium.