

the specific heat of bodies while they retain the same state; second, the heat connected with or developed by a change of state.

The specific heat of a body is that which is as it were imprisoned in it: for the only heat we can feel is the free caloric with which it parts, consequently the thermometer can form no test for the specific heat of bodies. The quantity of heat required to raise different bodies an equal number of thermometric degrees, is quite different. If, for instance, we take water, alcohol, mercury,\* and oil, and heat them in tin vessels by the heat of an oven, we shall find that they will not all arrive at any given point of heat at the same time. The oil will be the last to acquire the temperature, the alcohol next, and then the water; the mercury will first reach it. Nor can this arise from the different conducting powers of the various fluids: for if they are now all poured into water of the same temperature, (when they will give out all the caloric they have absorbed,) it will be found that the oil will heat the water most, and so on in succession; thus clearly shewing that different bodies have different capacities for caloric.

But we will now proceed to our second division of specific heat: the heat connected with or developed in the changes of state. This is generally called *latent heat*. The sudden changes of bodies from a solid to a liquid, and from a liquid to a gaseous, or aeriform state, and the reverse of these, give the body new capacities for caloric. In the changing of ice into water, great heat is absorbed; this becomes latent in the newly formed liquid. In the same way, to carry on the experiment, when water is boiled, it does not rise

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\* Mercury was anciently called quicksilver, from its resemblance to silver. The name is not yet quite laid aside.