periment, and was regarded by Herschel* as involving "a class of phenomena in physical science of a remote and singular kind, and of a very high and refined order, which could never become known but in an advanced state of science," it enlisted in its investigation many of those aspiring minds, who, not content to be the mere inheritors of bequeathed opinions, explore for themselves nature's storehouses of knowledge, and seek in their turn to add new particles of truth to the general mass. From their labours, "it appears to be definitely settled," to use the words of Professor Graham, "that the equivalents of the elements are not, without exception, multiples of the equivalent of hydrogen. The number for chlorine, 35·5, is conclusive against that hypothesis." But the *principle* of the idea conceived by the profound Prout seems to be quite established, for our author proceeds to say: "At the same time, the accurate determinations of the equivalents of chlorine, silver, and potassium, by Mauminé, lend positive support to the opinion that these and all other equivalents are multiples of *half* the equivalent of hydrogen." p. 118.

When M.M. Dulong & Petit discovered that equivalent or atomic weights of many elements have the same capacity for heat, they drew the general conclusion that *all* simple atoms have the same capacity for heat, and that those atomic weights which are inconsistent with that supposition ought to be altered and accommodated to it. Could such a remarkable relation be proved to exist between the chemical and the molecular constitution of bodies many important consequences might arise from it. Among others, the specific heat of a body would afford the means of determining its atomic weight. However, more extended observation has led Professor Graham and others to conclude "that elementary atoms have *not* necessarily the *same* capacity for heat, although a *simple relation* appears *always to exist* between their capacities." Thus while the specific heat of an atom of the following bodies, lead, tin, copper, nickel, cobalt, iron, sulphur, &c., is 1, that of arsenic and silver is 2, of phosphorus 4, of iodine $4\frac{1}{2}$, and so on. It may be as well to state that the specific heat of an atom of a body, or its "atomic heat" as it is called by Regnault, who has lately added much to our information on this subject, is obtained by multiplying the observed specific heat of the body by its equivalent number. From the researches of Neumann, Avogadro and Regnault, it appears that a *similar relation* exists between the *specific heat* and the *equivalent numbers* of *compound* bodies of *analogous composition* as obtains among the elementary. Our author, after illustrating this fact by 2 classes of salts, the carbonates and

* Discourse on Natural Philosophy, by J. F. W. Herschel, p. 307.