

or elements. A very large field of research—all on the lines pointed out by the new school—was opened out. But the age for a further application of mathematical reasoning came much more slowly in chemistry than in physical science.

The latter had at least one great department, in which a small number of factors, all admitting of mathematical accuracy—those of distance, mass, and motion—sufficed to explain the phenomena, at least if viewed from a great distance. This science is the physics of the heavens, the science of cosmic phenomena. On this earth—in physical and still more in chemical phenomena—the matter stood very differently. Here we have not to deal with a few measurable quantities only. A large number of elements or factors, of which only very few can be accurately measured, combine to make up what we called in the last chapter molar and molecular phenomena. In the study of inanimate nature, astronomy—the mechanics of the heavens—deals with the simplest relations; chemistry—the science of the changes which bodies undergo when being combined or separated—deals with the most complicated side of reality. Physics occupy an intermediate position, and thus we can also trace in the history of physical research the twofold influence of the astronomical method of inquiry on one side, and the chemical on the other.

But the general rule, that in chemical changes the weight of all the constituents put together never changes, was not the only numerical relation which came to the aid of students of nature, when they, at the end of the last century, betook themselves to exact measurements and