Again, organic compounds are described as being very readily altered, their equilibrium being very easily disturbed by the slighest external influences. But, is it possible to imagine less stable substances than those fearful compounds of iodine and chlorine with nitrogen, which split into their constituents sometimes, as it would almost appear, spontaneously? On the other hand, some bodies, hitherto exclusively obtained from vegetable or animal structures, present a degree of persistence and stability which is truly marvellous. Napthalin and paranaphthalin, so generally appearing among the products of the distillation of vegetable matter, owe their formation to the very circumstances which destroy some of the most energetic compounds of mineral chemistry.

I should tire you if I were to enumerate all the characters of organic compounds which have been adduced as marks of distinction, but which, in reality, are found to fail; suffice it to say, that a limit between inorganic and organic compounds does not exist: that the separation of chemical science into inorganic and organic is by no means founded in nature, but that it is an artificial division, which, first made at a comparatively early period of the development of chemistry, is now retained for the sake of convenience only. There is, in fact, no difference in the general properties of mineral substances on the one hand, and of vegetable and animal on the other. Whether you consider their physical or chemical characters, you will find that both kinds of bodies are governed by the same laws. In both kinds you observe the three states of aggregation. They are capable of existing in the form of solids, liquids, and gases, and the temperatures at which the transition from one state to the other ensues, their fusing points, their boiling points, are equally fixed. If we meet with many vegetable or animal compounds, which are destroyed before they are converted into gases or even before they are liquefied, how large is the number of mineral substances which have been observed in only one or two states? In fact, the great majority are known to exist only as solids.

The faculty of assuming regular geometric forms, while passing from the liquid to the solid state, is equally possessed by both classes: they may be crystallised by fusion or by solution. There are so many familiar instances of this kind that it is scarcely necessary to call your attention to the specimens of spermaceti, (crystalized by fusion), of tartaric acid, of citric acid, and of sugar, which are exhibited on the table. Moreover, the crystaline forms which are thus produced appear indiscriminately among mineral and among vegetable and animal substances. You could not obtain, perhaps, a better illustration of this fact than by comparing these crystals of alum, the composition of which I pointed out to you in a former part of this lecture, with those of codeine, one of the alkaloids of opium containing only carbon, hydrogen, nitrogen, and oxygen; both substances crystallize in regular octahedra.

If many organic compounds, especially the more immediate constituents of vegetable and animal structures, such as albumin and fibrin, have never been crystallised, I need not remind you of the variety of mineral substances which are entirely destitute of crystallization, such as many metallic oxides, the compounds of phosphorus with boron and nitrogen, the various glasses, porcelain, etc.

Again, the chemical characters are essentially the same in substances belonging either to the mineral or to the vegetable and animal kingdoms, the same constancy, the same laws of composition, prevail in both classes. The rough classification frequently adopted for mineral compounds of acids, bases, and indifferent substances, founded as it is upon the behaviour of these compounds towards each other, is equally applicable to the proximate constituents occurring in plants and animals. These proximate constituents are likewise acids, bases, and indifferent substances. The vegetable acids combine indiscriminately with mineral and with vegetable and animal bases, whilst the latter unite just as well with the acids of the mineral kingdom. On addition of citric acid to nitrite of potassa, you displace the nitrous acid, which is evolved in the form of red fumes; in a solution of chloride of