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In setting out to consider physical and chemical properties we may perhaps begin with chemical phenomena in the narrowest sense. Such phenomena depend, according to the atomic theory, upon rearrangements of atoms within molecules. They result in the conversion of individual substances into one another, and they are accompanied by rearrangements of energy.

In the first place, it is to be noted that enormous quantities of carbon, hydrogen, and oxygen, as water and carbonic acid, are, during a very long period of time, apparently inevitable constituents of the atmosphere of an astronomical body of sufficient size, after cooling has led to the formation of a crust. Further, it has been shown that in number, variety, complexity of forms and changes, and in the magnitude of the accompanying transformations of energy the known substances made up of carbon and hydrogen, and those made up of carbon, hydrogen, and oxygen far surpass the compounds of any other elements. Likewise the known compounds of oxygen and hydrogen with other elements are the most numerous and important among inorganic substances. Two peculiarities of the carbon compounds, the formation and properties of the carbohydrates, and the nature of the pro-