axples of isomerism. Thus, the essences of turpentine, citron, bergamot, neroli, juniper, savin, lavender, cubebs, peppermint and cloves are isomeric bodies; that is to say, they all have the same chemical composition. Submitted to analysis, all these products yield identical bodies in identical proportions; namely, for each molecule of essence, ten atoms of carbon and sixteen atoms of hydrogen. This is indicated by the common formula $C_{10} H_{16}$. These facts concerning isomerism prove that the qualities of the bodies depend much more upon the internal arrangement and deportment of their smallest parts, inaccessible to our investigations, than even the nature of their matter, and to show how far we yet are from having penetrated into the first conditions of the activity and energy of matter.

Among the odoriferous essences which are ranged by chemists in the class of aldehydes, may be montioned mint, rue, bitter almonds, cummin, anise, fennel, canella, and meadow-sweet. Finally, others are placed in the series of ethers, which are very varied and complex, notwithstanding the constant simplicity of their primary elements.

Such is the chemical nature of the greater part of the odorous principles of vegetable origin. But chemistry has not been limited to establishing the internal construction of these substances; it has been able to reproduce artificially a certain number of them, and the compounds so fabricated in the laboratory are in every respect identical with the products extracted from the plant. The theoretical speculations on the arrangement of atoms, which are sometimes alleged to be useless, contribute not only to make natural laws better known, but they also frequently, as is shown in the present example, give the key to unlock brilliant and valuable inventions. An Italian chemist, Piria, while working in Paris, in 1838, was the first to reproduce a natural aromatic principle. He prepared, by means of reagents indicated by theory, a salicylic aldehyde, which he found to be the essence of meadow-sweet (*Spiræa ulmaria*). Some years afterwards, in 1843, M. Cahours discovered methylsalicylic ether, and showed that it was identical with the essence of wintergreen (*Gaultheria procumbens*). The following year Wertheim obtained the essence of mustard in preparing allylsulphocyanic ether. These discoveries made a great sensation. At the present day chemists possess the means of preparing many other natural essences. Ordinary camphor, and the essences of bitter almonds, cummin, and canella, which we have seen to be aldehydes, are prepared without the camphor-tree, almons, cummin, or canella.

Besides these ethers and aldehydes, of which the identity with the essences of vegetable origin has been demonstrated, there exists among the new compounds of organic chemistry, a certain number of products formed by the union of ordinary alcohol or amylic alcohol with various acids—that is to say, ethers which possess aroma-