Chemical Revolution Encyclopedia Article

Chemical Revolution

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Contents

Chemical Revolution Encyclopedia Article.....1

Contents.....2

Chemical Revolution.....3

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Practical **chemistry** is as old, if not older, than civilization. It can be seen in ancient wall paintings, pottery shards, **glass** work, and metal processing. Its origins are lost in past. However, the development of the philosophy or theoretical aspects of chemistry are reasonably well documented. The Greeks and, in particular, Aristotle believed that all things in the world around us could be broken down into combinations of earth, **water**, air, and fire. These were the four elements and any compound could be made by adjusting the relative proportions of each. This is basis of **alchemy** and the belief in the **transmutation** of the elements.

Centuries later, chemistry began to emerge out of the dark realms of alchemy. Scientists adopted a systematic approach, trying to find common patterns and explanations for the observed chemical diversity in nature. The decomposition of minerals and the discovery of the different components of air lead to new explanations for the nature of **matter**.

Historically, the modern science of chemistry stems from the early 1800s and two remarkable men. The first was **Antoine Laurent Lavoisier**, a French aristocrat, and the second was **John Dalton**, an English school teacher. Both men helped to systematize chemistry, to define the law of definite proportions and the underlying atomic and elemental principles. They transformed the foundations of chemical thought and opened the way for those around them to create a chemical revolution that was as powerful and influential as any political revolution of the time. Arguably, it was their genius that transformed chemistry from an art to a science. The repercussions of their work lead to the discovery of the remaining elements, the foundation of the **periodic table**, an understanding of **stoichiometry** and structure, and ultimately to the chemical processes that presently enrich our world.