

## Chemical Arts and the Origins of Modern Chemistry

*Chemistry has a rich, colourful history. It has its origins in a prescientific past. It included three overlapping traditions: alchemy, medicine and technology.*

The alchemic tradition: The occult study of nature practiced by the Greeks in the 1<sup>st</sup> century AD later became known by the Arabic name alchemy. This approach dominated Western thinking well into the 16<sup>th</sup> century. Influenced by the Greek idea that matter naturally has the tendency to evolve towards perfection, the alchemists searched for a way to transform less valuable substances (eg lead) into more precious ones (eg gold). What started as a mystical search for spiritual properties in matter evolved over thousands of years into an obsession to find a magic potion to give eternal youth and transform base metals into purer, more noble metals.

The most important contribution of the alchemists to modern chemistry was the invention of distillation and other laboratory processes. And they helped the acceptance of observation and experiments, which replaced the Greek (and Buddhist) approach of studying nature only through reason.

The medical tradition: The alchemists greatly influenced medical practice in Europe. Since the 13<sup>th</sup> century, distillation is used to extract medicine from plants. This is the start of the alliance between medicine and chemistry.

The technological tradition: For thousands of years, people have developed technological skills to carry out changes in matter. Pottery, dyeing and metallurgy begun about 7000 years ago and contributed greatly to the understanding of the properties of materials. During the middle age and Renaissance several books were written about how to make glass, about dyes and gunpowder. Some included quantitative considerations. However, their approach was different from modern scientists: They showed little interest in exploring *why* a substance changes or *how to predict* the behavior of matter.

Words:

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|---------------|-----------------|
| • overlapping | • eternal       |
| • tradition   | • potion        |
| • technology  | • reason        |
| • occult      | • alliance      |
| • approach    | • dye           |
| • influenced  | • Renaissance   |
| • tendency    | • quantitative  |
| • perfection  | • consideration |
| • mystical    |                 |
| • evolve      |                 |
| • obsession   |                 |