

Class & Group	Seat	Name	Student number	Date	Handout Number

Pre-reading thinking question:

What is "vitalism" ?

a doctrine that the functions of a living organism are due to a vital principle distinct from biochemical reactions

a doctrine that the processes of life are not explicable by the laws of physics and chemistry alone and that life is in some part self-determining

Reading

Since all the first-known organic compounds had been isolated as products of the life process, it is understandable that for a time the belief was current that organic compounds in general could arise only through operation of a vital force inherent in the living cell. The Swedish chemist Berzelius (1779-1848), a great leader of the period, held that the chemical synthesis of such substances was beyond the scope of possibility and apparently no experiments were made in the direct attempt to achieve such a synthesis. However, in 1829 the German chemist Wohler discovered that evaporation of an aqueous solution of ammonium cyanate, a substance of purely mineral or inorganic character, resulted in production of urea, a representative compound of the organic type excreted in human urine. The result was so contrary to the thought of the period that Wohler cautiously repeated the experiment many times.

When fully satisfied with the experimental evidence, he addressed a letter to Berzelius, "I must tell you that I can prepare urea without requiring a kidney or an animal, either man or dog."



The discovery in subsequent years of a number of other instances of the artificial production of organic components eventually led to abandonment of the idea of a vital force. The preparation of organic compounds presents no mystery but is merely a matter of knowledge and experimental skill.

Post-reading question:

Why was the discovery of Wohler important?

Translation:
