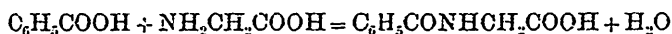


distilled water is of great interest. The solutions so formed have striking catalytic properties and in many respects resemble the enzymes very closely. When heated they coagulate and their catalytic powers disappear; and they can be "poisoned" by the action of prussic acid and many other toxic substances. The physical state of the metal has thus an important bearing on its catalytic properties, and it is probable that the same holds true for the enzymes themselves.

In physiology it is only recently that much attention has been given to the chemical changes taking place in the animal body. One of the first important discoveries was the physiological synthesis of hippuric acid by Schmiedeberg and Bunge in 1876. They found that benzoic acid and glycine dissolved in blood and passing through the kidney formed hippuric acid.



In the chemical laboratory this reaction only takes place when the reacting bodies are heated together in sealed tubes at 160°C . In 1882 another important chemical reaction was determined by Schröder. He found that ammonium carbonate dissolved in blood and passed through the liver forms urea.

Recently it is in the field of study of enzymes that the greatest activity has been shown by physiological chemists. These agents are becoming to be looked upon as having a wide field of action in effecting and augmenting chemical changes in living matter. Some think that an enzyme takes part in every chemical change. This view received strong support from the discovery of Buchner in 1897 of an intracellular ferment in yeast, which causes glucose to break up into alcohol and carbon dioxide, just as the growing yeast fungus does. The isolation by Herzog of the enzyme that causes lactic acid fermentation from the bacillus acidi lactici is also evidence in favor of the same view. The existence of enzymes in cells which apparently take part in chemical changes of the cells is a comparatively new idea and gives much promise in studying the chemistry of the animal body.

Another idea which, if established, will have a tremendous influence in chemical research, is reversibility of the action of enzymes. The proposition has already received much support. Croft Hill showed that maltose will condense glucose into maltose as well as cleave maltose into glucose.

