

order to prevent the contamination of the milk by saprophytes. The udder of the cow was carefully sterilized, the first milk was thrown away, and then the balance was milked direct into bottles containing an excess of an antiseptic preparation. By this process the bacteria with spores which produce the coagulating ferments were excluded, and if by chance any of them, coming from the lactiferous ducts, reached the milk, they were immediately paralyzed. Under these conditions which would eliminate all bacterial activity, the same phenomena of coagulation and transformation of the casein took place as before, and in the same time. These experiments were repeated with all antiseptics known to arrest microbial reproduction, such as fluoride of sodium, salicylic acid, etc., and the results were always the same. Moreover, in proportion to the age of the various samples of aseptized milk, these exhibited a gradual increase in the percentage of albumoses, formed at the expense of the casein. For example, in milk twelve days old, the proportion of the products of this digestion was 30 per cent., while in the same milk, two hundred and forty days old, the proportion was 63 per cent. Babcock and Russell then arrived at the conclusion that besides the organized ferments, there are in milk other ferments which are inherent in the milk itself. In pursuing their investigations further, they found these ferments in the milk of all the mammals that they studied (ass, mare, goat, sheep, sow, buffalo, and woman). In the cow's milk it is particularly abundant and more easy to isolate.

To this ferment they gave the name of Galactase, and classified it in the same family as Trypsin, the pancreatic enzyme.

This view of the matter was confirmed in the very same year. Bertrand and Bourquelot, without knowing anything of the work of Babcock and Russell, demonstrated by other processes the presence in milk of oxidizing ferments. As long ago as 1881, Arnold had found that fresh cow's milk became blue on contact with tincture of guaiac, and that this reaction is no longer produced if the milk is heated to a temperature of 80 deg. C. In 1890 Kowalesky established undeniably that the same reaction takes place in milk when mixed with old turpentine. But at that time this reaction was attributed to the presence of ozone. Later it was recognized that free ozone cannot exist in the system, and Bertrand and Bourquelot demonstrated that the reaction of milk toward oxidizing agents is due to the presence of a ferment. Of itself it is powerless to oxidize oxidizable substances without the assistance of an intermediary agent highly oxygenated, such as the tincture of