

the prejudicial effects of the air and made every possible exertion so as to obtain a complete vacuum.

This theory of Appert was so much admitted as being the only one that was true, that when tin cans appeared on the market, they had sometimes two or three holes, so as to perfectly eliminate the air.

A few years later, the well known chemist, Guy Lussac, was designated by the French Government to try and throw more light on the matter.

His numerous researches brought him to conclude that the alteration of the aliments was due to a series of oxidations and that the only means of preventing this was the complete rarefaction of the air.

This new theory similar in all respects to Appert's was consequently accepted until the discovery of a new science, the bacteriology, furnished the right explanation.

It is now known that all aliments, water, air, containers or any other vessels used in the handling of food products, are bearers of bacteria and other micro-organisms, that the application of heat is intended to destroy same and that the hermetical closing of the container prevents, afterwards, all causes of fermentation which would happen if the germs were coming in contact with the product.

This new science has also demonstrated that all these microscopical beings are not all killed at a similar temperature. Some spores have a great resistance; certain products are also the vehicle of types of microbes of a greater resistance than some others.

These facts clearly show why certain vegetable products such as: corn, pumpkins, etc., necessitate a higher temperature during quite a considerable time, whereas others such as: raspberries, strawberries and a few other small fruits, only demand a rather low temperature during a rather short time.

From our studying of the present article, we can deduct the two following principles that constitute, properly speaking, the fundamental basis of the conservation of edible products by the Appert process:

I.—Complete sterilization of the product and vessels used while manipulating the said product.

II.—Hermetical sealing of the container PRIOR or AFTER the sterilizing process, with a view to exclude all harmful germs.

In a subsequent chapter, we will see, in studying the various methods by which to proceed in the canning of each particular product, whether of animal or vegetable origin, why we must in certain cases seal hermetically or not the containers before they are handed over for sterilization.