

The Sour Milk Question.*

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Brief Historical Review.—Although a satisfactory explanation for the beneficial action of sour milk has only recently been advanced the fact that such milk is healthful, nutritious, and of service in disease has been known since the earliest historical records. One may find fermented milk mentioned in the Old Testament. We find, in the early history of France, in the biography of Francis I., that this illustrious king was cured of an alarming illness (probably neurasthenia) by the use of soured milk after all other remedies had failed. For many centuries the inhabitants of several Eastern countries have consumed soured milk as a daily ration; in fact, the drinking of such milk is intimately associated with their religion. They ferment the milk themselves by employing a starter that has been handed down through generations. And it might be stated that this starter contains the most powerful lactic acid forming organisms known. In our own country, especially in rural districts, the people have enjoyed buttermilk for years past. For fifteen or twenty years there has been a commercial fermented milk which has been very extensively employed by physicians in cases where an easily digested and well tolerated food was required. In this connection it is interesting to note the fact that for the last twenty-five years Dr. H. G. Piffard has advised the use of buttermilk or artificially soured milk for both dietetic and directly remedial purposes. He was successful in combatting, in this manner, many obstinate cases of gastro-intestinal complaints and cutaneous affections which had resisted other methods. Although always associating the beneficial action of soured milk with an improvement in the condition of the alimentary canal, it is only within the past few months that he has been able to satisfactorily explain the phenomenon. In a general way it was not until Metchnikoff, Cohendy, Herter, Combe, and others became interested in the study of the intestinal flora that the true value of fermented milk was recognised. We now know that it is the lactic acid and the lactic ferments, together with the

chemical change in the milk itself that produces the favourable results. Furthermore, we know that the greatest practical value of such milk is in its ability to favourably influence putrefaction within the intestines, and that leads us to the next subject for consideration.

Intestinal Putrefaction and Autointoxication.
—Herter divides intestinal putrefaction into three types: First, the indolic type, marked by striking indicanuria and probably due to members of the bacillus coli group. Second, the saccharolytic type, which seems to be instituted chiefly by anaerobic bacteria. In its simplest examples there is very little indican in the urine. Third, combined types or cases combining the characteristics of groups one and two. In other words, we may have to deal with a putrefaction of the proteids, or a fermentation of the carbohydrates, or both. When the proteids are disintegrated by organic ferments the products of ordinary proteolytic digestion are first formed, then the splitting process is continued to the production of indol, skatol, other aromatic bodies, gas, and in all probability tomins and other toxic substances, the nature of which is not well understood at the present time. In the fermentation of the carbohydrates we have to deal with certain gases and butyric and other irritating acids.

Etiology.—Metchnikoff states that when man enters the world the intestines are free from bacteria, which, however, soon gain entrance by means of air and food. He suggests that under normal and favourable conditions harmless organisms will find a suitable soil upon which to grow, and that these friendly or protective bacteria will prevent the development of detrimental microbes. Furthermore, he considers the greater part of the large intestine to be rudimentary, and possesses, in common with other rudimentary tissue, a lowering of resistance to disease. This hypothesis, if it be true, combined with the fact that the hygienic life of the average individual is not conducive to a healthful state of the alimentary canal, may explain why people of to-day are so prone to suffer from gastro-intestinal disturbances, and why putrefactive bacteria find such a favourable soil upon which to multiply.

Pathogeny.—The pathogeny of intestinal putrefaction is a very large subject, too large, in fact, for careful consideration in such a limited paper. It is, however, well worth the time to briefly review the work already accomplished. In recent months the members of the dental profession have devoted consider-

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