

be coagulated without being hardened, and the meat thus rendered tough. To accomplish this, the water ~~should~~ boil violently over a brisk fire when the mass is introduced. The first effect of the immersion is to stop the boiling; it should be allowed to recommence and continue for about three minutes to form a layer of coagulated albumen over the exterior of the mass. This effectually prevents the action of the water on the soluble constituents; but, since a temperature of 212 deg. would make the albumen too hard, the vessel should be removed to a cooler place and a little cold water thrown in to reduce the temperature, and the cooking finished at 180 deg. to 200 deg. Treated in this manner, the meat will be tender, palatable, and far more digestible than if the water had been kept boiling all the time.

Roasted meats are rarely met at American tables. It is true that there is a dish called roast beef; but it is not roasted. On the contrary, the meat is placed in an oven and baked. To those who have tasted beef prepared by both methods, it is not necessary to say anything. To those who have always eaten baked beef, we recommend that they should purchase one of the tin roasters that fit in the front of the fire, and they will find that properly-roasted meat is a very different thing from that which is baked, both as regards its flavor and digestibility.

The proper method of roasting is first to place the meat near the fire, to coagulate the exterior, and form the impermeable crust; when this is accomplished, it should be removed to a distance, and the cooking finished slowly at a lower temperature.

The effect of roasting thus conducted is to increase the properties of the osmazome, thereby rendering the meat more gratifying to the palate. At the same time, the judicious application of the heat has cooked the mass without making it tough; and since the meat is suspended, the fat as it melts, flows off and does not soak into it. In baking, the application of the heat is not continuous; the juices are in a greater measure extracted; the confined vapors of the oven injure the flavor; the joint rests in a bath of melted grease, the temperature of which is not high enough to prevent its soaking into the meat, and the fat that melts on the top of the mass is absorbed and seriously impairs the digestibility of the lean portions. Roasted meat is juicy, tender and flavorful. Baked meat is dry, often tough, and deficient in flavor.

The loss in the three methods of cooking we have considered is of some interest from an economic point of view, and may be stated as follows:—4 lbs. of beef lose in boiling 1 lb.; in baking, 1 lb. 4 oz.; in roasting, 1 lb. 5 oz.; 4 lbs. of mutton lose, in boiling, 14 oz.; in baking, 1 lb. 4 oz.; in

roasting, 1 lb. 6 oz. From this it would appear that roasting is the most expensive method; but when we consider the greater development of flavor, this objection is outweighed, especially when we recollect that the melted fat is not lost, but may be employed for many purposes.

Regarding the other methods of cooking we shall say but little, since the chemical principles involved are similar to those already considered. Boiling requires a brisk fire, if it is too weak the juices will be lost and the nutritive power proportionally diminished. Frying is boiling in melted fat instead of water. The fat should be hot enough to crust the flesh as soon as it is introduced, so that the meat shall not absorb the grease and thereby become indigestible. It is an old saying in armies that the frying-pan kills more men than the bullet, and this is unfortunately too true if the frying is not properly conducted. Stewing, sautéing, steaming and other methods all have their special uses; but their consideration appertains rather to the amenities of the art than to the chemical and physiological actions with which we are dealing.

It now remains for us to give a brief outline of the digestion of such food, in order that the reader may appreciate the connection existing between the digestibility of food, and the manner of cooking.

Cooked animal food consists of lean and fat. The lean flesh is digested chiefly in the stomach by the juices of that organ. The stomach juice cannot act on fat, it therefore passes through the stomach and is digested in the intestine by its juices. Since fat is not digested in the stomach, it follows that if the lean flesh is soaked in melted fat it will not digest in the stomach easily, but will remain there for a considerable period of time, and cause indigestion or dyspepsia.

Whether the lean is soaked in fat or not depends entirely on the manner of cooking. If it has been baked in an oven, it will nearly always be more or less fat-soaked. If, in frying, the melted fat has not been sufficiently hot, the same result will occur, and the meat will be indigestible. Even in roasting, if the first heat has not been strong enough to form a crust, the flesh will, in this case, become somewhat fat-soaked. Attention having thus been drawn to the chemical principles which lie at the basis of a rational system of cookery, we find that they are very simple, and their application by no means difficult. It therefore remains for those who suffer from indigestion produced by the bad cooking of animal food, to take the matter in hand themselves, and see that the principles we have detailed are properly carried out.—*Galaxy*,