a temperature of fifteen to twenty degrees above boiling water, or by a long-continued boiling, or by a series of short boilings on successive days.

9. Such milk has the taste of boiled milk. This taste appears at about the temperature of 160° F. Hence has arisen the method of pasteurization of milk. By this method it is heated to a temperature of 155° F. for a short time, and then cooled. This greatly delays the fermentations, and also kills the pathogenic germs that may be present.

10. In our large cities the popularity of sterilized milk is rapidly increasing, especially in the case of milk given to patients troubled with diseases of the digestive organs.

11. A cooling of milk immediately after it is drawn from the cow is of the greatest assistance in delaying the fermentation, and is probably the most practical method which can be recommended according to the present state of our knowledge.

HEALTH MATTERS.

Sneezing One's Teeth Out.

THE report of the physician in charge of the Ningpo Missionary Hospital for the past year, says the *British and Colonial Druggist*, contains some interesting observations on tooth-drawing in China. Dr. Daly remarks that Chinese teeth are much more easily extracted than those of Europeans. The native dentists are said to possess a wonderful powder, which is rubbed on the gum over the affected tooth. After an interval of about five minutes the patient is told to sneeze, whereupon the tooth falls out. Dr. Daly has offered a reward of $100 to any one performing the operation in this way in his presence, on condition that he is allowed to choose the tooth and examine the mouth before and afterward. So far no one will consent to perform the operation on these conditions.

Alcohol and Digestion.

From experiments made on himself by Dr. Eichenberg, says the *Medical and Surgical Reporter*, some further knowledge of the effect of alcohol on digestion is obtained, which contrasts strongly with the teetotal lecturer's experiment showing how digestion in a glass vessel is retarded by alcohol. Dr. Eichenberg found that a small dose of strong alcohol — e.g., brandy — shortens the time that food in general, whether animal or vegetable, or a mixture, remains in the stomach by more than half an hour. A similar but not quite so marked an effect is produced by a dose of diluted hydrochloric acid or mustard. Pepper and condurango diminish the time the food remains in the stomach by about a quarter of an hour. Beer and an infusion of rhubarb had no effect.

LETTERS TO THE EDITOR.

**** *Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

American and European Meteorology.

FROM time to time discussions have appeared in foreign journals comparing weather conditions and laws of storms in Europe with those in America. These have often shown a remarkable difference between the results announced abroad and those found in this country, and it has been a matter of great difficulty to determine the exact cause of the discrepancies. In the matter of the recent animated discussion as to the temperature at some height in the atmosphere in high areas and storms, it has been suggested already that most of the differences are due to the fact that in Europe the ordinary paths of storms are far to the north-west, over Iceland; and in consequence none of the conditions experienced in this country, on the passage of a storm over a mountain, could be studied in the south-east quadrant of storms in Europe (see this journal, June 6, 1890, p. 346). A very interesting illustration of this point has just appeared in *Meteorologische Zeitschrift* for April. Dr. Hann reviews a paper by Professor Russel, "Prediction of Cold-Waves," originally published in the *American Journal of Science* for December, 1890, and closes with the following words:—

"Of the fact, that the principal cause of cold in winter is local heat-radiation at the earth's surface, the author has no foreboding (*Ahnung:* there seems to be no exact English equivalent), which indeed can scarcely be believed, since his own discussion sets it forth with such certainty. This discussion has only a negative value in that it shows how one, in setting up a rational system of weather forecasting, should not go too far in its seeming certainties." It is not my purpose, nor is it necessary, to defend Professor Russel in his position; but Dr. Hann's view is founded on so faulty a process of reasoning from known conditions in Europe to those which are supposed to exist in this country, that it should not be allowed to pass without comment.

I have already given in this journal (Feb. 27, 1891, p. 121) a statement of the conditions accompanying cold-waves in this country, and it seemed wise to make a partial study of cold-waves in Europe. To this end I first selected out all the cases during December, January, February, and March, in the years 1881–89, which showed a fall of 10° C. (18° F.) in twenty-four hours at Vienna, Austria. It should be noted that the cold-wave discussed by Professor Russel was a fall of at least 20° F. in twenty-four hours, and a temperature reaching 36° or below over an area of at least 50,000 square miles. Dr. Hann says he does not understand this 36°, and suggests that it may mean 36° below zero! This is most extraordinary, and shows how extremely deficient is the knowledge on this subject in this case. No cold-wave of this character has occurred in this country in the last ten years. Dr. Hann probably has in mind the cold of a Siberian winter, where temperatures of —70° are often experienced. The following comprise all the temperature-falls of 18° F. at Vienna: (1) Jan. 14, 1881, from 25° F. to 7°; (2) Dec. 29, 1882, from 48° to 30°; (3) Jan. 31, 1884, from 50° to 32°; (4) Feb. 28, 1886, from 26° to 7°; (5) March 3, 1888, from 33° to 15°; (6) Feb. 12, 1889. On examining the weather-maps for these dates, it was very quickly found that there is absolutely no comparison between the temperature-falls in Europe and those in this country. In most of the six cases there was a high area to the south, and almost a calm; the conditions were favorable for radiation from the earth; but in no single case was there a cold-wave. In (4) there was a high area to the north; but here only one other station, out of fifty-eight all over Europe, reported a fall of 18° F. In not one of these cases was there a fall of temperature over a large region, but it was almost entirely confined to single localities in a very large region, and was manifestly due, as Dr. Hann suggests, to radiation from the earth. In this connection it will be an interesting contrast to give a summary of cold-waves in this country found by Professor Russel between the years 1880 and 1889, statistics of which have been published in the "Annual Report of the Chief Signal Officer for 1891." The total number counted is 619, or an average of 62 in each year. Five of these cold-waves had a fall of 20° F., extending over a region more than 1,000,000 square miles in extent, and in eighty-seven cases the same fall occurred over more than 500,000 square miles.

It is well known that our cold-waves are due to the rather rapid passage across the country of a storm which is followed by a high area. Wherever the cold air may come from, only a very small proportion of it is due to heat-radiation, the principal cause suggested by Dr. Hann. It seemed advisable to study the storms and high areas passing over Europe. I took out all the cases in which these conditions were near Sonnblick during all the months 1887–89. There were fourteen storms and twenty-six high areas. Of these, only one storm, on Oct. 22, 1889, had any thing like the characteristics of storms in this country. In all the three years there was not a single high area that was similar to those experienced here. The evidence furnished by this study was most remarkable, and showed that no comparison whatever can be instituted between these conditions and their accompaniments in the two countries.

In 1884 there was established a high-level observatory at Ben Nevis, in Scotland, over 4,000 feet in height. A great deal has been expected from this observatory, lying as it does almost in the pathway of depressions unheard of in any other part of the