



## The Primary Catechism on Beer.

(By Julia Colman, National Temperance Society, New York.)

### LESSON VII.—THE FOOD IN BEER.

Q.—How much solid matter is there in a gallon of beer?

A.—There is said to be about twelve ounces.

Q.—How much barley is used in making a gallon of honest beer?

A.—The rule is six pounds of barley to the gallon.

Q.—What, then, has become of the remaining five pounds and four ounces of barley?

A.—It has been grown, ground, mashed, brewed, and fermented or decayed, and some of it given to the cattle as grains.

Q.—What is the character of the solid matter?

A.—It is mostly gum, sugar, and hops—nearly indigestible.

Q.—What is it worth as food?

A.—Not so much as a penny loaf.

Q.—Does not the beer give the grain in better condition for food?

A.—Dr. J. J. Ridge says:—'The putrified barley-broth called beer, cannot possibly be so nourishing as the barley from which it is made.'

Q.—Is not the alcohol nutritious?

A.—Dr. Edward Smith says alcohol is not a true food.

Q.—Why, then, do beer-drinkers grow fat?

A.—Beer fills the blood with waste matter and hinders the circulation, so that it is not thrown out.

Q.—What becomes of it?

A.—It is deposited between the muscles or wherever there is room for it, stuffing out the skin and making the drinker look plump.

Q.—What does Liebig say of the food in beer?

A.—We can prove that as much flour as can lie on the point of a table-knife, is more nutritious than nine quarts of the best Bavarian beer.

## How Food is Wasted in the Manufacture of Beer.

(By Alfred J. Glasspool, in 'The Adviser.')

You have sometimes been in the kitchen watching mother making a meat pudding. You see her chopping up the suet, rolling the flour, cutting up the meat; you watch her lining the basin with the crust. You see how she fills it up with meat, and then, having covered it with the crust, she puts it in the cloth and places it in the pot to boil. When dinner time comes how delicious the pudding smells! How satisfied you feel when you have finished dinner!

Your mother by her skill has prepared several articles of food in such a manner that they are fitted to nourish your body. You could not eat the uncooked flour or the raw meat, but you can when they are prepared as a pudding. The meat and the flour are not wasted by the cooking, they are improved.

This is not the case with the manufacture of beer, it is the very opposite. To make beer, good food must be wasted; that which would have nourished the body is made into a dangerous poison. Let us see how this is brought about.

The brewer in making beer does not want to make a drink to make people strong and well, as your mother does when she makes beef-tea; he only wants to make a drink that will make the drinker stupid with the alcohol it contains. How does the brewer go to work? First, the maltster has to do his part.

The maltster buys barley of the farmer. He soaks it in water for about two days; then he piles it up in a heap for a day, and afterwards spreads it out on the floor, then he dries it over a furnace. And now the barley has a new name, it is called malt. No doubt some of my little readers will ask the question, why the maltster takes all this trouble? This is easily explained.

If you bite a grain of barley, and then a grain of malt, the malt will taste sweeter than the barley. You would come to the conclusion at once that there is more sugar in the malt than in the barley. This is the fact, for the five parts of sugar in the barley are increased after malting to fifteen parts. The whole desire of the maltster in all the trouble he takes is to increase the quantity of sugar, and you will see the reason for this in a minute.

The maltster sells the malt to the brewer; and he first of all passes it through rollers to crush it, then he soaks it in a big tub in which is warm water. The water is stirred about, for the brewer wants to get all the sugar out of the malt.

Near the bottom of this tub, or mash-tun, as it is called, there is a false bottom having a number of holes in it. Through this the liquor, now called sweet-wort, passes; the grains are left behind. This is what you see going along the streets in big carts; the grains are being taken to the dairy to feed the cows, they are of no use now to the brewer. The sweet-wort is now boiled with hops, this gives it a bitter taste, and then it is allowed to run into large cisterns. And here a substance called yeast is thrown in; the liquor begins to froth or to ferment, and while it is fermenting nearly all the sugar is changed into two deadly poisons. One is called carbonic acid gas, the other alcohol.

So, you see, all this trouble is taken to change good barley into a poisonous drink. We see, therefore, that in the manufacture of beer, valuable food is wasted, much time is occupied, and a great deal of money is put to a bad purpose. We may give these facts as reasons why we will not drink beer.

## Tobacco and the Higher Education.

(Canada Educational Monthly.)

Certain American universities have entered, says the 'British Medical Journal,' on a campaign against tobacco as being injurious, not only to the physical health, but to the intellectual development of students. The authorities of the Boston University have issued an ordinance that those students who are unwilling to forgo the use of tobacco while within the precincts of the university will have their fees returned, and be required to take their names off the books. The Ohio Wesleyan University has made a rule forbidding its students to use tobacco in any form. Other universities have also set their faces more or less decisively against the seductive herb. Several attempts have been made in the higher educational institutions of the United States to put the question of the effects of tobacco on academic youth to a statistical test. In 1891 the official physician of Yale published the results of observations made on the undergraduates of that university. In a class of 147 students he found that in four years seventy-seven who did not use

tobacco surpassed the seventy who did use it to the extent of 10.4 percent increase of weight, 24 percent increase of height, and 26.7 percent in increase of chest girth. The most marked difference, however, was in point of lung capacity, the abstainers showing an average gain of 77.5 percent more than smokers or chewers. Among the undergraduates at Amherst it was found that during the four years of the status pupillaris the abstainers from tobacco gained 24 percent more in weight, 37 percent more in height, 42 percent more in chest girth, and 75 percent more in lung capacity than their weaker brethren who fell into the toils of 'My Lady Nicotine.' The larger relative increase in growth and vital capacity among the Amherst students as compared with those of Yale is accounted for by the fact that the former are on the average younger than the latter, and therefore more susceptible to injurious influences.

As regards the effects of tobacco on the intellectual powers, Professor Fisk found on dividing a class at Yale into four sections representing different degrees of proficiency, the highest section was composed almost entirely of non-smokers. We do not know (continues the 'Journal') of any similar statistics from the colleges and universities of other countries; but the figures as to Yale and Amherst are certainly striking. They only place in a more vivid light, however, a fact as to which, we take it, there is no dispute—to wit, that under the age of twenty smoking is likely to stunt the growth and hinder the development of the body, including the brain. As regards Professor Fisk's experiment of sectional classification, we are doubtful whether there may not be some confusion between cause and effect. Besides the question of intellectual capacity, another factor has here to be taken into account. As a general rule students who do not smoke are more industrious than those who do. It is not necessarily, however, because they do not smoke that they work harder; it is rather because they are industrious that they do not smoke. Dr. Johnson said that tobacco was conducive to laziness because it gave a man the feeling that he was doing something when he was doing nothing. We know, of course, that some of the hardest and most productive workers in every field of intellectual activity smoke from morning till night; these, however, are heroes not to be imitated by men of common mould. Besides, as Balzac said, of the heroes who had fallen victims to love, it might be argued that the great men who smoke would be still greater if they eschewed tobacco. However this may be, there can be no doubt that for heroes as well as for ordinary men who are still in the making, the less they have to do with tobacco the better.

A medical man, struck with the large number of boys under fifteen years of age whom he observed smoking, was led to inquire into the effect the habit had upon the general health. He took for his purpose thirty-eight, aged from nine to fifteen, and carefully examined them. In twenty-seven he discovered injurious traces of the habit. In twenty-two there were various disorders of the circulation and digestion, palpitation of the heart, and a more or less taste for strong drink. In twelve there were frequent bleedings of the nose, ten had disturbed sleep, and twelve had slight ulceration of the mucous membrane of the mouth, which disappeared on ceasing the use of tobacco for some days. The doctor treated them all for weakness, but with little effect until the smoking was discontinued, when health and strength were soon restored.—'Medical Monthly.'