

half of the machine, each page is "backed" with the one necessary to its completion, and an endless stream of newspapers in one unbroken length is evolved. This web of paper is then carried by tapes through several small cylinders to the larger ones, in one of which is a perforating knife which cuts up the web into single newspapers. A very ingenious distributing arrangement then receives and carries off the single sheets.

The press is thus as nearly automatic as possible, requiring but two hands while printing at the rate of twenty thousand perfect newspapers per hour. The *Star* has now been printed for some time on this press and the proprietors express themselves perfectly satisfied with the working of the press. We have much pleasure in congratulating our contemporary on the acquisition of such a machine and also on the well-merited increase of circulation which has called for its introduction.

ABSTRACT OF SOMERVILLE LECTURE ON THE ADULTERATION OF FOOD.

By DR. J. BAKER EDWARDS, F. C. S.

Ever since our first parents partook of the forbidden fruit, the subject of Food appears to have been one of peculiar difficulty and temptation to mankind. What to eat, what to drink, and what to avoid, is as serious a problem to-day, as it was in the days of Moses, and has not been solved by the empiricism of the celebrated Dr. Cullen. While the laborious researches of Liebig, Mulder, Lehmann, and Dr. Edward Smith have done much to extend and classify our knowledge, they still have left large unexplored fields to the investigation of future physiologists and sanitarians. Some find it a sufficiently hard problem in these days to live at all, but the still more difficult one of how to live well, is yet farther from a true solution, yet inasmuch as the priceless blessings of good health, and a ripe old age, are largely dependent on the due observance of the laws of this branch of Sanitary science they are at least deserving of our intelligent consideration. If the subject of good diet is of itself so difficult as to justify the proverb that what is one man's meat, may be another man's poison, how much more complicated does it become, when from selfish and sordid motives the adulterator steps in with stealthy tread, and unseen hand to mingle with the bread—a stone—and for a fish gives us a scorpion! Good and wise legislators have from time to time invoked the arm of the law against these insidious and cruel evils, and as society becomes better instructed in the laws of health and the causes of ailment the more possible does it become to alleviate and prevent a large proportion of human suffering and to rescue many of the innocent from sharing the fate of the guilty.

During the past twenty years the question of adulteration has received more or less attention from the governments of Great Britain and other countries, and the progress of British legislation on the subject was first sketched by Dr Edwards who then called the attention of the meeting to the first Canadian Act relating to this subject. It will be seen that Canadian Legislation begins at a point somewhat in advance of British Legislation. The great want of the British Acts has been central authority both in law and in science. The report of the Select Committee of 1874, points to the Inland Revenue staff as the most reliable and efficient Court of Appeal, and recommends a consolidation of districts, and limitation of the number of Analysts to those more thoroughly competent. The spirit and temper of local authorities in Great Britain render this most difficult of accomplishment, and the comparative weakness of this legislation hitherto, appears plainly to have arisen from commencing legislation at the wrong end, and from the inherent weakness of "Permissive Bills." The Dominion Government has, therefore, taken the bull by the horns, and commenced its legislation at the opposite end, viz. with the Central Authority, and under its well organized Department of Inland Revenue. It proposes to establish in a few central districts, well appointed laboratories, under the charge of the most experienced analysts the country will supply, aided by an efficient staff of assistants, and through its own officers to

collect samples and report to Government the actual condition of the supplies of food, drink and drugs offered for sale in this country; what course future legislation or municipal regulation may take, will largely depend on the results obtained by the analysts of the Department.

It may prove that in this new country where trade competition is less severe than in the populous cities of Great Britain and America less temptation exists to fraudulent practices. Or it may on the other hand be found that the absence of such restrictive legislation in this country lays us peculiarly open to the importation of inferior food, which would be shut out of markets in which these restrictions exist. English experience seems to show that the central system is best adapted to discover the real condition of trade in this respect and the results obtained by the central government will be received with confidence by the people of Canada as free from any local bias or prejudice, and as based upon as perfectly independent scientific authority as the country can command. The Inland Revenue Act of 1875 provided that analysts be appointed for each district of Inland Revenue or such combined districts as may be deemed desirable, and that Inland Revenue officers shall be appointed to obtain articles of food, &c., in the several districts and forward them to the analyst of the Division for his report. The analyst will attend in Court to support his analysis when required to do so by the defendant, and will report quarterly to the Department of Inland Revenue the number of articles he has analysed under the Act, and the nature of the adulterations detected. The penalties for the act of Adulteration are, for the first offence, one hundred dollars and costs, for the second offence imprisonment for a period not exceeding six calendar months with hard labour. The penalties for the sale of adulterated food are, \$100 for the first offence, \$200 for the second offence, with forfeiture of the adulterated food. Articles mixed with harmless substances must be so declared at the time of sale. The penalties for the sale of liquors containing ingredients injurious to health are for the first offence \$100 or imprisonment, for the second offence \$400 or imprisonment for 3 months with or without hard labour. The Act takes effect from the 1st January, 1875, and is therefore now in force. It will be extremely valuable to those who shall be entrusted with this enquiry to have so large an amount of experience already before them in the records of the British and American analysts. Dr. Lyon Playfair in the debate on the bill now under consideration of the Imperial Parliament remarks that much has been said in defense of "trade usages," but we have it in evidence that before legislation on this subject it was acknowledged to be a "trade usage" to dilute milk with at least 25 per cent of water, to mix alum with inferior flour in bread, to adulterate vinegar with vitriol, and poison confectionery with mineral pigments. These practices had been abandoned when brought to light, and even bad teas were driven to other markets. Legislation on this subject had therefore reformed "trade usages" to the great advantage of the public.

A full and vivid description of the most ordinary and most harmful cases of adulteration followed.

One of the most valuable means of eliciting truth and of forming sound and correct judgment on matters of public and scientific interest is *debate*.

And for this purpose the public analysts of the United Kingdom have formed an association to discuss and deliberate on the questions upon which a difference of opinion may be likely to arise, "to obtain a nearer uniformity of processes and results, a wider dissemination of new researches, and to raise the standard of analytical work, as applied to article of food, drink and drugs." This Society has given the first fruits of its labours in the "Definition of an adulterated article."

An article of food or drink shall be deemed to be adulterated—

1st. If it contain any ingredient which renders such an article injurious to the health of a consumer.

2nd. If it contain any substance that sensibly increases its weight, bulk or strength, or gives it a fictitious value, unless the amount of such substances present be due to such circumstances necessarily appertaining to its collection or manufacture, or be necessary for its preservation, or unless the presence thereof be acknowledged at the time of sale.

3rd. If any important constituent has been wholly or in part abstracted or omitted, unless acknowledgment of such be made at the time of sale.