

criminal intent. The term "food poisoning" is here limited to the occasional cases of poisoning from organic poisons present in normal animal or plant tissues, the more or less injurious consequences following the consumption of food into which formed mineral or organic poisons have been introduced by accident or with intent to improve appearances or keeping quality, the cases of infection due to the swallowing of bacteria and other parasites which infest or contaminate certain foods, and the poisoning due to deleterious substances produced in food by the growth of bacteria, moulds, and similar organisms. We have no certain statistics of the frequency of food poisoning, but Mr. Jordan has collected data of more than 1000 cases occurring in the United States in the two years October, 1913, to October, 1915.

In the chapter dealing with poisonous plants the poisonous fungi claim most attention. Some reference might have been made to the nutmeg, which is distinctly toxic in large doses, and in smaller doses to some individuals. In the section dealing with food-borne, disease-producing bacteria, the sub-heading is "Paratyphoid Infection," and this term is used many times. What is really meant is Gärtner (*B. enteritidis*) infection, and this organism is distinct from the paratyphoid bacilli, though belonging to the same group. Ptomaine poisoning is too briefly referred to, and we note the omission of all allusion to tyrotoxinon, which is somewhat surprising. One of the best sections is that dealing with food preservatives, to which several pages are devoted. In conclusion, reference is made to such conditions as beri-beri, pellagra, lathyrism, scurvy, etc. The book is well produced, very readable, and illustrated with several figures. R. T. H.

Adolescence. By Stephen Paget. Pp. 59. (London: Constable and Co., Ltd., 1917.) Price 7d. net.

In the adolescent mind ideas of sex and religious ideas often grow up together, and they should be correlated. While there is a wide range of individual peculiarity within the limits of the normal, there is no virtue in a child's being inquisitive. Careful preparation should be made by parents and teachers so as to give well-considered and honest answers to embarrassing questions. Perhaps there should be a home-ceremony or an initiation, "the whole thing well thought out, the exhortation written down beforehand, every word of it." "First-rate school teachers are more likely than second-rate parents to say the right thing to children." "The reasonable soul and flesh is one man," and there must be disciplining of both sides. "If I could be a young man again, I would get on without alcohol and cigarettes. . . . Let me, as a doctor, add a good tonic to steady the nerves of adolescence. I prescribe a full dose of the natural sciences." "What does harm the minds of children is not our plain speaking; it is their own secret reading, gossiping, and imagining." "And—so far as adolescence is concerned—if ever there was a time when we ought to speak plainly, it is now."

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LETTERS TO THE EDITOR.

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Sources of Potash.

SIR EDWARD THORPE'S lucid review of the known geological sources of potash (NATURE, January 3) is of absorbing interest to agriculturists, whose industry must be seriously affected by any permanent stinting in the supply of this indispensable fertiliser, entailing a corresponding diminution in the production of root crops. They might, however, tide over a temporary shortage of potash by availing themselves of a subsidiary source.

The Boards of Agriculture for England and Scotland having recently issued leaflets directing attention to the high percentage of potash contained in bracken fern, Prof. H. G. Greenish, director of the Pharmacy Research Laboratory in Bloomsbury Square, very kindly undertook at my request to make analysis of the ash of incinerated bracken. As it had been stated that the amount of potash contained in the fern cut in autumn showed a considerable diminution compared with that cut at midsummer, I sent Prof. Greenish three consignments, cut respectively in July, September, and, after the plant had withered, in November. The result proved practically the same in each case, and I may quote as follows from Prof. Greenish's very full report:—

"I find that the fern, when dried in a warm room and completely burnt to a nearly white ash, yields 4.82 per cent. of ash. This ash contains 41.5 per cent. of potash, K_2O . The dried fern itself would therefore yield 2 per cent. of potash, or 50 tons of fern would yield about 2.41 tons of ash, in which there would be about one ton of potash. . . . In addition to the potash the ash contains small quantities of soda, phosphates, sulphates, and chlorides."

It is clear from this that, although bracken can never compete with geological deposits as a source of potash, a considerable amount might be recovered by harvesting and burning the fern under a proper system. At the same time, it would tend to rid the land of a pest which has destroyed much of the best hill pasture in the North, and is spreading year by year. Bracken will grow only on good land; it cannot thrive on marsh. The destruction of pasture is far from being the only evil; animals feeding among bracken get their heads and necks covered with ticks—in fact, the death of a considerable number of sheep in this county seems to be justly attributed to this cause alone. If, therefore, land can be cleared of a most pernicious weed, and, at the same time, a valuable manure obtained for tillage, there are many farms where the work might be profitably undertaken.

The analogy of kelp presents itself. I understand that it takes from twenty to twenty-two tons of good wet seaweed to produce a ton of kelp, which yields between 30 and 40 per cent. of potassium salts, more than double the return from an equal weight of dried fern, besides the iodine which is recovered from kelp. But, on the other hand, it is far easier to cut bracken than to gather deep-sea tangle, and the ash can be used as a fertiliser on the farm where it is burnt.

Driving lately from Dorchester to Abbotsbury, I saw hundreds of acres of downland rendered absolutely valueless by bracken, whereof the luxuriant growth betokened a soil well adapted either for tillage or forestry.

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