purgatives, proclaim the advantages to be derived from the use of opium, rest, liquid food, ice, diluted stimulants, drainage, and antiseptics.

ART. XIV.—*On the Poisonous Properties of Borax and Nitre.* By CHARLES A. CAMERON, M.D.; Fellow and Professor of Hygiene and Chemistry, R.C.S.I.; Vice-President, Society of Public Analysts of Great Britain and Ireland; Medical Officer of Health, Dublin.

IN the works on Toxicology, borax (sodium biborate, $\text{Na}_2\text{O}_12\text{B}_2\text{O}_3, 10\text{H}_2\text{O}$) is not enumerated amongst the poisons. This substance belongs to the *Materia Medica*, but is rarely prescribed for internal use. Its dose is, for an adult, 30 grains.

Borax and other salts of boracic acid have been recently suggested as antiseptic agents. Dumas found that borax prevented the action of yeast upon sugar—though, according to Petit (*Comptes Rendus*, LXXV., 881), it merely retards the action of the ferment. Dumas' views are supported by J. B. Schnetzler (*Pharmaceutical Journal* (3), iii., 846), who maintains that borax destroys the activity of the bodies that develop fermentation and putrefaction, and also that it kills the infusoria and protoplasm of the vegetable cell. According to Rabotton (cited by Schnetzler) and Bédoin (*Comptes Rendus*, LXXXIII., 579), carcasses of animals which had lain for months in soils saturated with native borax remained free from odour and well preserved. Suillot (*Bulletin of the Chemical Society of Paris* (2), XXV., 346) recommends the use of calcium borate as a preservative for meat. In contact with meat this salt is resolved into free boric acid, which prevents the formation of mildew, and a basic salt which retards or prevents fermentation. Very recently a mixture of borax and glycerine has been proposed as a preservative for food, especially of milk. With respect to the latter article, the necessity of keeping it fresh, when imported into towns from the country, has induced the somewhat general use of such anti-ferments as nitre, borax, glycerine, salicylic acid; and borax and salicylic acid appear to be pretty largely employed in the preservation of milk, cream, butter, and other foods. It is worth considering whether or not the constant use of such articles is likely to prove injurious to health. With respect to borax, a case of poisoning of an ox by the use of this salt has recently come under my observation. A

gentleman in the county of Limerick purchased a pound of Glauber salts from a druggist. The salts were given to a cow. The animal became very ill and died in the course of a few hours. I found that the salts given to the animal consisted of borax. It would seem, therefore, that borax given to animals in quantities equal to the medicinal dose of Glauber's salt (sodium sulphate) acts as a violent poison.

It requires some skill in order to detect small quantities of borax in milk. The suspected substance should be dried and burnt at a low temperature; the ash is then to be moistened with a little pure sulphuric acid, and the boric acid thus set free dissolved out by alcohol. The alcoholic solution is next to be evaporated nearly to dryness, and the loop of a platinum wire dipped into it; the moistened loop, when placed in the colourless flame of the Bunsen burner, colours it more or less green. If the flame be examined by the spectroscope, the presence of a very minute trace of boric acid is detectable.

There are recorded many cases of poisoning of man by nitre taken in mistake for purgative salts, &c. This salt appears to be frequently sold in mistake for Glauber salts. Nine cases of poisoning of horned cattle by nitre given in error have come under my own observation, two of which are of recent occurrence. A farmer in the county of Roscommon purchased a pound of "salts" from a general dealer in the town of Roscommon. The medicine was given to a cow. The animal died in about six hours after. Another farmer bought in the same shop three pounds of purgative salts, which he gave to three bullocks a year old. Two of the animals died upon the day the medicine was administered to them, and the third expired early on the following morning. They were not purged, but they exhibited symptoms of distress, "shivered all over," refused food, and drooped their heads. They were opened by a butcher, who professed a knowledge of the diseases of cattle. He was not able to detect the presence of disease, but he found the stomach "blackened as if it were burnt." I found so much nitre in the contents of one of the stomachs that on drying a portion of the mass it burnt like tinder, evolving the beautiful violet light characteristic of the presence of potassium salts.

The vendor of the so-called Glauber salts had actions taken against him by the owners of the poisoned cattle, and at the Roscommon quarter sessions, held on the 9th of October, 1882, the

county court judge gave decrees against the defendant for the value of the animals, and the plaintiff's costs. During the trial the defendant and his assistants admitted that they were unable to discriminate nitre from washing-soda or Glauber salts, although they sold those articles in large quantities. In the shops in small towns, where everything "from a needle to an anchor" is sold, it is to be feared that the accidental substitution of noxious for innocuous drugs is of no infrequent occurrence. Of the following mistakes made in such shops I have had official cognisance:—The sale of arsenic for arrowroot, of tartar emetic for cream of tartar, of arsenic for sodium bicarbonate, of corrosive sublimate for nitre, of oxalic acid for Epsom salts, and of sugar of lead for nitre. Now that we have a Pharmaceutical Society in addition to our Apothecaries' Company, it is time that the sale of any kind of medicine by ironmongers and grocers should be put a stop to.

ERGOT IN SKIN DISEASES.

At the recent meeting of the American Dermatological Society, Dr. Heitzmann, of New York, said that ordinarily he was not disposed to be enthusiastic with regard to the use of remedies, or the efficiency of drugs; but he had seen such good results from the use of the fluid extract of ergot that he felt warranted in bringing it to the notice of the Association. In certain forms of acne, the large pustular form in the beard particularly, he is accustomed to use it in conjunction with Vlemineckx' solution locally. Perhaps five or six per cent. may be set down as incurable, but the rest will be benefited by these remedies; of course they have a tendency to return, but they may be again treated successfully in this way. The second disease is rosacea in both of its forms, but especially in cases marked by the dilatation and new formation of vessels. In these ergot had such good effects that he extended the experiment to other diseases of the skin. He used it in psoriasis without the least result; and in a number of cases of eczema without better effect. In erythema, urticaria, and pruritus, however, the effect was most marked. He reported a case of a gentleman with chronic urticaria who was completely cured by a few half-drachm doses. Although he had used the remedy freely, and had found a few who objected to the taste and refused to take it, he had not seen a single bad effect from the remedy.—*Boston Med. and Surg. Jour.*, Sept. 14, 1882.