ON POISONS IN THE HOUSE.

BY AN ANALYST.

IN the popular mind a poison is generally regarded as a substance with such powerfully noxious properties, that if even a minute quantity be received into the system, it will speedily act upon the body with such violence, that probably the issue will be fatal. While the idea is to some extent correct, it is quite an imperfect definition of that class of substances capable of destroying life, some of which act rapidly, some slowly; some of which are dangerous only in large doses, some deadly even if taken in the smallest quantity.

People, as a rule, are perfectly aware of the poisonous properties of arsenic, vitriol, sugar of lead, hemlock, laburnum, and many more substances of a similar nature; but none the less must we regard as poisons in the true sense of the word such familiar and much-used substances as carbonate of soda, tartaric acid, elder-flowers, &c. In the former case, the effects produced are almost immediate and violent; while in the latter the action is slower, or a larger quantity is necessary to produce the same effect upon the vital organisation.

At present, however, we have no intention of discussing poisons in their ordinary aspect, our purpose in this paper being to point out the existence in almost every house of poisons, which, in various forms, are lurking in disguise, and doing injury to many, while their presence may be quite unknown and never even suspected.

Undoubtedly, the commonest skeleton in the house is arsenic. The law has wisely put restrictions on its sale, for every one who sells this substance is required to make a record of the full particulars of every sale, and only persons who are known to the vendor are to be supplied. But this has reference only to arsenic pure and simple; for a manufacturer may with impunity sell any article in the preparation of which arsenic has been used, or into whose composition it enters, and so we find it present in many articles of every-day use or ornament.

Its combinations produce beautiful colouring materials, especially green; hence it is used in printing wall-papers, carpets, chintzes, ribbons, and coloured paper and cardboard. Its presence in wall-papers, especially of a bright green, is so extremely common, that it is quite an exception to find such wall decorations free from it, and experiments have been made which clearly prove that arsenic gradually vapourises from these coloured surfaces, and disseminates through a room—in many well-authenticated cases, to the injury of the occupants who have breathed the poison-laden air. Bright green patterns of wall-papers should therefore be regarded with the greatest of suspicion, from the probability that their beauty is due to this poisonous material, and especially should care be taken that the paper on the walls of bed-rooms is quite free from it.

But the danger of arsenic poisoning is not confined to its presence in our wall-papers. There it is to some extent suspected; but even with our walls of polished wood, or tapestry-covered, we may be poisoned quite as readily and without the least suspicion, while reading by a shaded lamp.

Lamp-shades are frequently made of stiff paper, the outer side of which is green, as being the easiest colour for the eyes; but while commendable thoughtfulness is evident in the selection of the colour, the same consideration is certainly not shown in the materials which produce that pleasant hue, for in numerous instances the green pigment has been found to contain a large amount of arsenic. The fact of itself is sufficiently alarming; but when we take into account the heat of the lamp, which greatly assists in the volatilisation of the arsenic, we see how dangerous such useful articles may become to persons in the room, and especially to those who may be sitting close to them.

An equally unthought-of source of danger has been shown to exist in coloured hat-linings; and although we do not believe that there is much cause for alarm on this score, the following case is interesting as showing that such danger really does exist. A gentleman had been troubled for several months with a severe eruption on his forehead, and at the same time one eye had become almost useless. After consulting a doctor he paid a visit to the country, taking with him an easy wide-awake hat. Before long a complete cure had been effected; but on his return to town the eruption re-appeared. In consequence, he paid another visit to the doctor, and, on entering the room, placed on the table the chimney-pot hat he was in the habit of wearing, the bright maroon lining of which at once caught the eye of the doctor, who suggested that it was the cause of all the mischief. A portion of the lining having been cut out and examined, arsenic was found in considerable quantity. On the gentleman then giving up the use of the hat, the eruption again disappeared; but to make quite sure he went from home with the hat, and on the second day all the previous symptoms re-appeared, thereby clearly proving the poisonous character of the lining.

Here we have seen that the presence of arsenic is not confined to green colouring materials, and it is sometimes found, although much less frequently, in red, brown, and yellow cloths, and in various coloured portions of printed fabrics, chintzes, carpets, ribbons, gloves, &c.

Pasteboard boxes are often covered with coloured paper which contains arsenic; but perhaps in this class of goods the greatest danger arises from confections, and the brightly coloured wrappers which are used to make them more attractive. Such deadly

poisons as red lead, vermilion, and verdigris are in general use for the production of these colours; and emerald green, a compound of arsenic and copper, is largely sold for a like purpose under the innocent name of "Extract of Spinach." Some time ago a case occurred in Glasgow of two children being poisoned by eating sweetmeats, in the shape of a watch, the face of which was a green paper; the colouring material being found, on analysis to consist of this emerald green, or Scheele's green, and the whole amount of arsenic on the watch being estimated at eighteen grains.

Here it may not be out of place to draw attention to another source of danger which our children are exposed to, namely, that from toys, which are often painted with poisonous material. The subject is deserving of attention on the part of parents, and it would be well if they would never allow their children to be in possession of coloured articles whose nature may be doubtful, for almost everything a child gets hold of must go to its mouth.

As poisoning ingredients of frequent occurrence, lead and its various salts rank next in importance to arsenic. Lead is so commonly used with safety for domestic purposes, especially the storage and transmission of water, that the dangers attendant on its use are apt to be neglected. Soft water acts rapidly upon metallic lead, and many instances have occurred of lead-poisoning in new houses supplied with a soft or peaty water, such as that from Loch Katrine, with which Glasgow is supplied. It has been found, however, that by allowing the water to run through new pipes or stand in new cisterns for some time, danger may be thus avoided, owing to the fact that such water acts only upon clean metallic surfaces; and that lead, when exposed to its action for some time, gets coated with a whitish film of oxide or carbonate of lead, which effectually prevents any further action of the water. People entering new houses would therefore do well to let the water tap remain open for a day or two, and meanwhile borrow water from their neighbours for all dietetic purposes. For the same reason leaden cisterns should never be scrubbed out, or the true surface of the lead in any way scratched or exposed.

Knowing that water thus acts upon lead, it will not seem surprising that this metal should occasionally be found in considerable quantity in aërated waters through the action of the water upon the leaden alloy of the machine. In like manner, the artificial waters prepared in gasogenes, which are partly composed of lead, have been found in some cases to contain a considerable and dangerous amount of lead in solution.

Again, in cleansing bottles, shot is frequently made use of, and a white deposit of carbonate of lead is thus in many cases left upon the sides of the bottle. This would, of course, be immaterial if only water or some such liquid were to be kept in the bottle; but the chances are that it will be used for holding some acid liquor—beer, wine, vinegar, pickles, fruit, &c.—and the result is that the carbonate of lead is dissolved by such acid, obviously to the detriment of the person who may afterwards consume the contents.

Here we may refer to the action of vegetable acids upon brass or copper pans; for, although the fact is generally known that poisoning may sometimes occur from the use of such utensils, it is not so generally understood that the danger lies in allowing the acid liquor to cool in these pans, the metal of which is quite unacted on by such acids when hot, but is readily attacked when cold.

Such are some of the most common domestic poisons; but, alas! the list is not by any means exhausted.

Hams are occasionally done up in canvas loaded with yellow chromate of lead, and some of this poison is consequently found adhering to the ham. Arsenic has been largely used in the preparation of violet and face powders; while carbonate of lead, or the acetate (sugar of lead), and sulphur are amongst the common ingredients of some hair restorers. Arsenic, either as yellow orpiment or as arsenic white, is mixed with sugar for the manufacture of fly papers; and vermin killers usually consist of a mixture containing the well-known poison phosphorus.

The Food and Drugs Act gives us some assurance of the absence of poison in the articles of food we purchase; but, notwithstanding the Pharmacy Act, in those of personal or household use we may have poisons which are quite as dangerous, from which the law gives practically no protection. In France, Belgium, and Switzerland the use of poisonous wrappers for confections is prohibited, and in Paris the name of the manufacturer is required on every package of sweets. In Sweden they have gone much further, for there "some years ago, the attention of the Government authorities was directed to the peculiarity of many cases of sickness, cramp, debility, depression and loss of appetite, which seemed quite unaccountable till traced to poisoning by the presence of arsenic in paints, colours, wall-papers, ladies' dress stuffs, ribbons, carpets, curtains, blinds, confectionery, &c." So painful and so numerous were these cases (the Court chemist and city analyst having investigated some thousands altogether) that prompt and rigid action had to be taken, and five years ago a stringent law was passed prohibiting the sale of any articles containing poisons, especially arsenic, the slightest trace of which subjects the trader to a heavy fine and the confiscation of the goods.

The foreigners are far ahead of us in this respect. They manage *some* things better than we do; for here in England, in our ofttimes contradictory fashion, we restrict the sale of poisons, yet permit them to be freely vended in a coloured guise, in many instances to the detriment of the public health. We are much in need of a general Act which will effectually prohibit adulteration and the sale of poisons in whatever form, except for medicinal or scientific purposes; but till the public thoroughly awake to a sense of the danger which surrounds them, and demand a remedy by legislation, we can scarcely hope to see the last of food adulteration. It is, however, a source of consolation to believe that fatal cases are far less frequent than formerly, and that ordinary care and watchfulness are a very efficient protection.