administered, assuming, of course, that the patient's general health is good. None of them will induce abortion, but neither will any of them have any direct effect either in inducing or retarding the menstrual flow, and perfect general health is not incompatible with even the prolonged suppression of menstruation.

THE RELATION OF HÆMORRHAGES TO UNHEALTHY SURROUNDINGS.¹

By JOHN MEREDITH, M.D. EDIN.,
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I HAVE within the last few days had a small pamphlet published, and I have taken the liberty of sending a copy of it to each member of the Branch whom I might expect to be present here this evening. In the latter part of that pamphlet I have described the line of argument which I have taken upon the question, and which I here propose to recapitulate.

I can illustrate this best, perhaps, by a brief account of a case of bleeding from the nose.

On September 22nd, 1888, a little girl, aged 9, was brought to me owing to severe attacks of epistaxis, which had been going on for three days. The child looked ill. I examined her, found her tonsils enlarged, and she had some mucous matter sticking about in the fauces. The glands on the side of the neck were hard and swollen. I was well acquainted with the little patient and her family. I very soon came to the conclusion that the illness was due to what, with your permission, I will call "malsany."²

Next came the question, What form of it? The child's mother stoutly denied that there was any drain nuisance near her house, or any unhealthy condition of that sort; and what was more, the water which they all used was obtained from the town supply, and there was nothing amiss with that, and the child did not wander about to bad-smelling places. I felt a little puzzled in the face of all this, gave the mother some necessary instructions as to what to do, and desired her to bring the child back in a couple of days; and this she did, and reported that the bleeding was not stopped; that it came on when she was in bed as well as when she was up sitting by the fire. She had given up playing, only she walked out towards the other end of the row of houses in which she lived, did not care for her food, but was always drinking.

A few doors off from her mother's house, in the same row, is a pump, placed at the side of a garden plot, and which is still used by many of the occupants of those houses. The water from the pump I did not consider good; soakage from garden plots was apt to find its way into the well. It was very hard, of course, but the people all liked the taste of it "much better than your tap water," as they take care often to inform me.

I asked my little patient, at the second visit, if she went to the old pump for water, and she replied "Yes, often; like it better than the tap water." In fact, she took a lot of it, an announcement which appeared to surprise her mother not a little. I told her to discontinue this practice at once, and on no account to drink any water except that taken from the tap. As soon as this was done the bleeding from the nose ceased, and the child rapidly recovered in other respects.

The malsanic cause, or the special malsany here, was undoubtedly, in my opinion, polluted water.

A few years ago I had a very severe case of epistaxis, in the house next to that where the child just mentioned lives; it happened to a man, aged 70, and it lasted a great many days. Astringent injections and all the recognised applications gave very imperfect results. I also considered this due to some insanitary matter—a malsany, as I would say now—but what was the immediate specific form? He partook of the water, and that freely, from the pump just referred to, and I am pretty sure that the quality of it then was no better than it is now; but at that time there was no better to be had within convenient distance.

The old man was exposed to another malsanic influence at the same time, and that in his own dwelling. Under the stairs, in his cellar, he had a quantity of turnips stored, and some potatoes as well. The slow decay and drying smell from these penetrated his house, and was powerful about the door of his bedroom. I begged

him to get rid of those things at once, but the request was not heeded, as he did not believe in the necessity for it, and so they were allowed to remain. However, some of his friends, seeing that the old man was getting more and more feeble, set to work and had the cellar properly cleared out and cleaned. It was surprising as well as gratifying to notice how rapidly the patient recovered; the bleeding soon ceased, and he has remained in good health ever since, and he tells me he does not keep "turnits" in his cellar now. It may strike you, of course, that these cases were only coincidences—mere *post hoc*—and that, probably, would be the conclusion of many. I cannot, however, in a brief paper of this sort, bring forward a multiplication of cases all bearing upon the question at issue, but taking them in the light of considerable experience and observation, they appear to me as cause and effect.

The vascular system in the first instance was imbibing through the digestive system a deleterious element, which vitiated the quality of the blood, and this, in its turn, the quality of the vascular coats, producing vascular tension, and this pressing, the vessels gave way at their weakest part, which was the Schneiderian membrane. In the second case the vitiation ensued through the pulmonary system, and very likely through the digestive as well, but probably in a minor degree in the case of the latter, both, however, tending to the like end. The old teachers aptly described these sorts of phenomena as only cases of determination of blood to the parts. It was a bad phrase, since somehow people got to be contented when they said that much, and that there was nothing further to inquire into.

My contention is that the many and varied unhealthy influences and conditions which I would designate by the term "malsany" may, any one of them, or a combination of two or more of them, cause, and often do cause, hæmorrhage from some organ or other in the body exposed to them. But malsany is also the cause of many other forms of illness, some of them of so serious a nature as to prove fatal to the victim in a very brief space of time, while others may be of a trifling character, barely distinguishable from a state of ordinary health. But at present we have to consider the connection between this and blood-loss. The most serious form in which one meets with this is menorrhagia, and it is probably the most frequent form of the loss also. In the pamphlet which I have already referred to I have given many cases illustrating this. I would, however, like to add one or two additional pieces of evidence before closing my remarks.

In a corner of the parish in which I live is an isolated block of houses. The block is surrounded by highly cultivated garden plots. On the north side, between the houses and cultivation, is the well. The subsoil is sandy and porous. Some time ago the water in the well was evidently impure and not safe to drink, and the state of things around the well's mouth was not sanitariously satisfactory. No representations were made, and it was a long time before I became informed as to the nature of affairs. During the period nearly all the women in the place suffered from excessive discharge at their monthly periods, amounting in some to severe menorrhagia. After the insanitary matters were removed by properly securing the well and reconstructing the drains, the females of the tenement improved in health, and the menses resumed their ordinary character, not, however, without leaving permanent marks on the constitution of more than one among them. If the above were but a single instance of the kind, I should not feel justified in placing it before you, but to me it is only one among a great many.

At times cases of menorrhagia are met with which run on for a period of about three weeks. It may be that an apparent stopping appears at the end of the first week, but the relief is very short, for on comes the flow; a similar illusory occurrence may be witnessed about the end of the second week, only, however, to end in disappointment. At the end of the third week there is a cessation, and the patient feels disencumbered from a sense of lassitude at the same time. The instances where I witnessed this peculiarity were in women who were exposed to sewer gas and sewage-polluted water. But sewer gas and sewage-polluted water are often the causes of typhoid fever, and the ordinary duration of an attack of typhoid fever in this district is three weeks. Perhaps the greatest number of these cases of excessive catamenia last for about a week or ten days. I have been satisfied, in all cases of this character, that I have inquired into, that they were the victims of some unhealthy influences or other, usually polluted water or drain air, or both.

Now there is a febrile condition, perfectly well known, which runs a course of about a week or ten days, and is the result of

¹ Part of an address delivered in opening the discussion for the evening, before the Somerset Branch of the British Medical Association, at Taunton.

² This is the word which the author proposes to introduce to express insanitary surrounding conditions.

blood-poisoning from noxious air or some other matter. For example, I had two cases of illness in the same house; one was typhoid fever, which ran its ordinary course, and the other one of high febrile character, lacking many of the peculiarities of true typhoid; in it the temperature of the body returned to normal on the ninth day, in the other on the 22nd. I am not in a position to say how far this parallelism may be sustained. That certain things in chemistry take nine days to nitrify, while others take less, is in this connection only an additional fact, suggestive of thought and, of course, further inquiry.

All the serious cases of bleeding hæmorrhoids I have had to deal with have been cases of persons living in unhealthy dwellings. I am, of course, aware that in all such cases there is a more or less disordered condition of the liver and digestive organs; but there is just as good reason for ascribing the disordered state of the liver to piles, as piles to disordered liver. As a matter of fact, in very many instances, they are both only features of the one complaint, dependent on some form of malsany.

It would be too severe a tax upon your time, I fear, if I were to continue this discourse much further. I have noted what seemed to me good cases of hæmaturia resulting from protracted imbibition of noxious air and impure water, which, when the offending elements were removed, began to improve, and ultimately recovered. The bleeding in scurvy, purpura, and some other disorders as well, are all of a similar nature, and only too familiar. The common saying that any spontaneous or passive hæmorrhage is only an effort of Nature to right itself may be very true, but what is the cause of the wrong that has to be righted? And then, what is the wrong itself? It strikes me we must pay closer attention than ever to what has aptly been said to account for the progress of modern engineering, and that is to "the next to nothings" in investigating the causes of diseases.

ON LEAD-POISONING FROM SERVICE PIPES, IN RELATION TO STERILITY AND ABORTION.

By ALFRED SWANN, M.D., M.R.C.S.,

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THE following cases are of interest, inasmuch as they suggest, if nothing more, a possible danger arising from the supply of water through leaden piping for domestic purposes.

CASE I.—Mrs. T., aged about 32 years, was confined in 1882. Since then she has had progressive ill-health, with constipation, digestive disturbances, frequent colic, rheumatic pains, and irregular menstruation, with now and then severe menstrual hæmorrhage. After cessation of menses for eight weeks an abortion occurred on March 17th, 1884. After cessation of menses for seven weeks, another abortion took place on September 10th, 1884.

Colic continued to be frequent, and severe constipation remained obstinate, and recurrent attacks of metrorrhagia became alarming. I had for a long time been of opinion that the water-supply, which came through lead piping of some length, was the cause of all the foregoing symptoms, and in the early part of 1887, my patient having been confined to bed for some months, iron piping was substituted. After this there was only one attack of colic, and no severe hæmorrhage. The bowels became regular, and menstruation became normal for a time. Pregnancy ensued, and my patient was confined of a healthy child on March 2nd, 1888. Since then she has remained in good health.

CASE II.—Mrs. C., aged about 30 years, has had one child some seven years ago, in 1882. She came under my care in 1885, suffering from constipation, indigestion and colic. She has irregular and frequently profuse menstruation. She aborted after suspecting pregnancy for eight weeks, on January 6th, 1886. She has a blue line on the gums. I ascribed her abortion and previous illness to lead piping, and these were removed and iron pipes substituted. Colic became less severe and disappeared; the bowels became regular; menstruation became normal; then pregnancy ensued. On October 22nd, 1887, she was confined of a healthy child, and has since remained in good health. In the same house the servant suffered from rheumatic pains, colic, and constipation, until the removal of the lead piping, after which she regained her wonted health.

CASE III.—Mrs. F., aged about 30 years, has two children. The last was born on September 7th, 1884. After this her health became seriously impaired; she had severe digestive disturbances, rheumatic pains in the limbs and loins, constipation, colic, and very irregular menstruation. Her life became a burden to her, no treatment being of any avail. I told her husband that I believed all her symptoms were due to the water-supply, but he ridiculed the idea. I referred him to Cases I and II. Even after receiving their evidence, his scepticism remained, but he removed the lead piping, and substituted iron. The result was as remarkable as in Cases I and II; all the symptoms disappeared and menstruation became regular. Then pregnancy ensued, and on May 11th, 1887, my patient was delivered of a healthy child, and has since remained in good health.

I do not record these cases in a dogmatic spirit, nor do I aspire to scientific accuracy in my deductions from them, but there can be little doubt that in Cases I and II the cause of abortion and hæmorrhage was water contamination by lead, and in Case III one may reasonably suspect lead as being the cause of all the symptoms.

It has fallen to my lot to observe many cases of plumbism, and its relation to sterility and abortion only touches the very fringe of a vast subject. The influence of lead on the nervous, vascular, muscular, lymphatic, and digestive systems merits greater consideration than has hitherto been devoted to it.

To suppose that plumbism means only wrist-drop and paralysis of the extensors of the forearms seems to me to be illogical. I believe that in plumbism, neuritis is not confined to any particular set of nerves. Is not lead colic due to paralysis of the nerves regulating the muscular coats of the intestines? What is the meaning in cases of lead-poisoning of the tense pulse, the liability to epileptiform seizure, to cerebral and other hæmorrhages, to gout and uric acid, and to albuminuria and rheumatic pains? Surely these point to both nervous, vascular, and metabolic derangements which open up a wide field of inquiry for those who are interested in our food and water supply, and in public health generally.

This paper is written only to suggest grave possibilities to those who at present barely recognise a serious source of danger, and although I personally am satisfied of the far-reaching and lethal influences of lead in relation to many conditions not generally regarded as having any connection with it, yet I would prefer that those with more opportunities at their disposal than I possess would follow out a line of investigation which I have merely indicated. I am satisfied that they will find a fertile field for research.

NOTES ON AN EPIDEMIC OF SMALL-POX AMONG KAFIRS IN THE TRANSKEI.

By H. HAVELOCK STURGE, M.R.C.S., ETC.,

Late District Surgeon, Xalanga, Cape Colony.

IN the JOURNAL of August 25th, 1888, appears a very interesting communication from Surgeon-Major Pringle on vaccination, and its efficiency, when properly carried out, as a preventive against small-pox. Read in conjunction with the above-mentioned article, the following notes may be of value. The district in which the experiences to be related were gained was a very large one, about 80 miles across, and contained a black population of several thousands. Practically the inhabitants were unvaccinated. In September, 1884, the first cases of variola occurred among the community. Four natives, who had been working at the diamond fields, where the disease had been prevalent for twelve months,¹ started from Kimberley to return to their home in the Xalanga district. After a journey on foot of one month they arrived within 20 miles of their destination, when one of the number became ill, and remained at a kraal (village),² while his companions

¹ At this centre of industry the nature of the disease had been variously diagnosed by the medical men, some of whom eventually carried their differences to the law courts. The BRITISH MEDICAL JOURNAL, when referred to as arbitrator, decided in favour of the disease being specific (see JOURNAL, 1884; South African Medical Journal, 1884).

² In South Africa the term "village" can hardly be used strictly; the huts are usually placed in groups wherever water is convenient and pasture and arable land obtainable. In thickly peopled parts huts occur every few hundred yards.