ABSTRACT OF A CLINICAL LECTURE ON PNEUMONIA.

Delivered at the Liverpool Royal Infirmary.

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GENTLEMEN,—I wish to call your attention to-day to the results of treatment in seventy-seven consecutive cases of acute pneumonia which have occurred in my hospital practice. I show you a table on which all the leading features of each case are mentioned. The patients were of the following ages: Under 10 years, two cases; between 10 and 20, eleven; between 20 and 30, thirty-five; between 30 and 40, eighteen; between 40 and 50, ten; between 50 and 60, one. Sixty-nine of the patients were males, eight females. Many of the patients were strong robust-looking men, whose previous health had been good, and in whom the disease had existed for a few days only before admission; the attack being distinctly traceable to exposure to wet or cold, or both. The pneumonia was single in sixty-seven cases, double in ten. Of the single cases, the right lung was affected in thirty-three, the left in thirty-four. Of the double cases, the left lung was most involved in six, the right in one case. Both lungs were equally involved in three cases.

With reference to treatment. Venesection was not practised in any case. Only three patients were cupped. In three only were leeches applied. In two, leeches had been applied before admission into hospital. All these cases were amongst the early numbers of the series. Whenever antimony was used, it was given in small doses—one-twelfth to one-fourth of a grain—except in two cases, Nos. 6 and 2, in which a third of a grain and grain doses were given. In fifty-seven cases no antimony was given. In a large proportion of the cases some alcoholic stimulant was given early in the disease. In forty-three it formed, together with carbonate of ammonia, the main therapeutic agent; and in some cases nothing but alcohol in some form was given. In the other cases, alcohol was given after a few days' treatment by other means; as small doses of antimony (in twelve cases), etc. In some cases, marked by a moderate acceleration of pulse only, carbonate of ammonia and spirits of chloroform were given alone. The stimulants were given at regular intervals—every hour, or every two, three, or four hours—generally with food, beef-tea or milk. In the most severe cases, marked with a very rapid pulse, great dyspnoea, and high temperature, brandy was given every hour or hour and a half. In two instances referred to in the table, alcohol given early in the disease aggravated the symptoms. Its omission, and the administration of small doses of antimony, were followed by relief. Calomel and opium were not given in any case. Where there was much pain, opium was given, and one or two full doses were usually sufficient to give relief. Mild counterirritation, mustard poultices, and turpentine fomentations were generally employed in the early stages, and frequently blisters at a later period. Nutrients were allowed freely in all cases: beef-tea and milk from the beginning of treatment, and solid food as soon as it could be taken.

Of the seventy-seven patients, two died—Nos. 7 and 55. The first seemed to have rallied from his attack. The pulse had fallen to 80, and the respirations to 20. Convalescence appeared to have set in; but effusion into the pleura took place rapidly, and death soon followed. The second patient died after being in the hospital forty-eight hours. He was admitted in almost a sinking state; and the *post mortem* examination revealed the existence of hepatization of the whole of the right lung.

The average duration of these cases from the commencement of treatment to the period of convalescence was $8\frac{1}{2}$ days. The average duration from the date of attack to the period of convalescence, in the cases where the date of attack could be clearly ascertained—viz., in fifty-four, was $11\frac{1}{2}$ days.

These are all the cases of acute pneumonia, uncomplicated with advanced organic disease, which have occurred in my hospital practice. They were all marked by the characteristic physical signs, as well as the general symptoms of the disease, and the progress of each case was carefully noted from day to day.

The results of these cases, especially when taken in conjunction with others, tend to prove that pneumonia is far from being so fatal a malady as was formerly supposed; and that, under a treatment which consists in supporting the patient, and in abstaining from depletory and depressing measures, its mortality is low.

As it is only in reference to general results that I wish to speak to you to-day, I shall not enter into any further details as to treatment; but I would remind you that, in estimating the value of any therapeutic measures which you may use in pneumonia, you must never forget the influence of rest in bed, and of proper nursing. In all cases of acute disease, the rest and the nursing, including the regulation of the atmosphere and the temperature of the room, and the administration of nourishment, constitute a most important part of the treatment; and we are, perhaps, too apt to overlook this element of cure.

In watching your cases of pneumonia, there are three symptoms to which you should pay special attention; viz., the pulse, the respiration, and the temperature. As these rise or fall, so may you argue favourably or unfavourably of your patients. If you find, when you are giving stimulants, that the pulse falls from day to day, you have an indication that you are pursuing a proper mode of treatment; but if, on the other hand, the pulse rise, you must seriously consider whether they ought not to be withdrawn. This rise, however, may be an indication that you are not giving enough stimulants, and, by increasing them, you may bring down the pulse.

Speaking generally, the pulse in pneumonia, although in many cases apparently full, is wanting in firmness, and indicates a feeble arterial tension; in fact, it is essentially dicrotic, and this dicrotism has been more or less marked in all the cases in which I have taken sphygmographic tracings of the pulse.

ON ARSENICAL DISEASE, OR THE DISORDERS PRODUCED BY ARSENICAL PAPERS AND COLOURS.*

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THE subject to which I propose to draw your attention this evening, although of great importance, is not one in which I should, of choice, have taken particular interest; but circumstances compelled me to its investigation, and I have come to certain conclusions which will, I think, form excellent material for our discussion. It is well known to you that many cases of chronic illness have been attributed to arsenical colours, especially of paper-hangings: they have from time to time been published, and when I was lecturing some years ago on forensic medicine at the Bristol Medical School, I collected various instances in which sickness had been caused by these pigments; the most were the result of green wall-papers, but others had been caused by green envelopes and green confectionery, and, again, by green used loosely in the colouring of muslin dresses. One curious accident I noted, in which the paint had adhered to bread placed on newly painted shelves, and had been sent out with it (Taylor *On Poisons*). But in my practice I had not until the last two years traced any disease to the use of these colours. During that period, however, I believe I have met with several cases, and have become convinced that arsenical pigments are very frequently the cause of troublesome complaints, which, unless the cause be detected, are very difficult to cure.

There are two principal ways in which they do harm: in the first and more obvious way, they produce the disorder for which the patient comes under treatment, and there is nothing else the matter; but in the second the danger is more insidious, and on that account the greater. The patient is laid up by some ordinary malady, confined to a room infected with arsenic, and then there are gradually, and in a most deceitful manner, added the symptoms that the arsenical contamination produces. In this class of cases, in which the poison merely modifies some other disease, it is difficult to define the characteristics; but the most marked that I have noticed have been sickness and vomiting, sore-throat, sore-eyes, and occasionally eczema and diarrhoea. On the other hand, in the first class the signs are well marked. First, there are cases in which the patient suffers the usual symptoms of dyspepsia; there are more or less nausea or sickness, a troublesome cough, capricious sore-throat, and redness or soreness of the conjunctiva. In a second group, nervous symptoms predominate; there are headache, prostration, and marked restlessness and excitement at night; generally, also, more or less decided gastric symptoms, with especially a very coated tongue. In a third group, and the most common, I must say that until the last year or two I should not have attributed the mischief to arsenical poisoning, but should have called the cases low fever, or perhaps have considered them to be cases of aggravated dyspepsia.

* Read before the Bath and Bristol Branch.

I have more than once isolated such patients, thinking they were about to have typhoid, or, when sore-throat has predominated, scarlatina; and, finding them become worse when confined to their bed-room; I have had them removed, and they have recovered. In these there have been great prostration, headache, wakefulness, great nervous excitement, often an irritable stomach, and always a very coated tongue, with red edges—very much the symptoms of slight typhoid, but without elevation of temperature, and with only slight quickening of the pulse. My attention was first drawn to this group of cases in a house in which the poison was abundant, and I certainly did not for a time consider that they were produced by arsenic; but circumstances led me to that conclusion, and I have seen others since in which removal from the green-papered room has rapidly produced a cure. I shall refer at greater length to the house in which these occurred by and by, in order to illustrate this part of my subject.

These three classes include the most of the cases that I have seen; but other conditions are, I believe, sometimes produced, such as violent and intractable sneezing, eczema, and sores of the mucous membrane of the nose.

No doubt, on a subject like this, it is not difficult to exaggerate; but I am convinced that a very large number of people are suffering from the cause about which I am writing, and that it is our duty to make a raid upon these papers and get them abolished. There ought, of course, to be some legislative enactment rendering the use of such poisons for colouring papers penal: that alone would meet the danger properly; but in the meantime we ought, I think, to instruct the people not to buy these injurious ornaments. In Clifton, although a great many people are well aware of the danger, I believe that the use of arsenical papers is on the increase, and they are to be found in almost every other house. I think, also, that before I close, you will agree with me that this subject has an important medico-legal bearing; for I shall show you that in the secretions of people inhabiting arsenically papered rooms the poison can be detected, and even in quantity that may be weighed.

I am glad to say that I have had no opportunity of any *post mortem* examination, although in one case my patient nearly succumbed to sickness; but I cannot doubt that arsenic must be present in the liver, the tissues, and the blood. On this point, Taylor says in his work *On Poisons* (1848, p. 21), "The fact that arsenic may be detected in the blood and urine of a person who survives its effects, is a point of considerable importance in a medico-legal view. Thus an analysis of either of these fluids may furnish evidence otherwise only satisfactorily obtained by a *post mortem* examination of the body; and cases of criminal administration of arsenic to the living, which have hitherto escaped the hands of justice, owing to the want of chemical proof, may become as clearly established to the satisfaction of a jury as if the poison had operated fatally, and had been found after death in the stomach." When I have proved to you that arsenic has been found in the course of my investigation, in the expectoration and urine of a person suffering from an arsenical paper, and in the perspiration of another inhabiting one of these poisonous rooms, you will at once see in what an awkward predicament any one accused of poisoning such an individual might be placed.

It is quite possible, taking another view of my subject, that to some people living in these rooms the arsenic may act medicinally and be beneficial, and I think I have seen it to be so. This would be likely in cases like those in which we should prescribe it.

I will now proceed to place before you, in as condensed a manner as I can, the data upon which I found the conclusions above stated.

Between two and three years ago, one of my patients, a gentleman residing in one of the best houses in Clifton, consulted me about a sore on the inner side of the right nostril. I had no idea but that it would get well soon, and did not think much of it. It proved, however, very intractable; sometimes being almost healed, and then again becoming irritable and bleeding. This went on for several months, and during this period my patient several times drew my attention to a red and sore condition of the conjunctivæ, especially of the lining of the lower eyelids. During the same period, on three or four occasions one or other of the housemaids came under my care with symptoms like those of febricula—such symptoms as I have already described—sometimes with sore-throat, sometimes without. Now, this gentleman was well aware of the danger of arsenical colours; he was living in his own house, newly built, and had, as he thought, taken the greatest care to assure himself that there was no arsenic in any of his papers or colours. The walls were papered, and then washed with a dull sage green, for the production of which an arsenical preparation was quite a superfluous and unnecessary danger. As, however, he did not recover, and the subject had been under consideration, he decided to send some of the colouring matter from his walls to an analytical chemist.

A portion was scraped off and forwarded to Dr. Voelcker, Consulting Chemist to the Royal Agricultural Society of England; and I quote from a letter written on April 27th, 1872. Dr. Voelcker says: "I have made a qualitative analysis of the sample of colouring matter which you sent me, and find it contains lots of arsenic." After some remarks on the relative safety of different papers, Dr. Voelcker says, "but if an arsenical water-colour, the body of which, like the sample you sent me, is composed of carbonate of lime, be used, some dust may come off, and such dust containing arsenic cannot but be injurious to the inhabitants of the rooms painted with water-colours containing arsenic. As far as I can judge, there is enough arsenic in the small sample you sent me that, if swallowed by a couple of persons, it would, no doubt, make short work of them." On receiving this report, I advised my patient, as a matter of interest, to collect some of the dust from the furniture and pictures, so that we might ascertain whether there were any of the poison floating free in the room. The house was kept so clean that it was not easy to collect a palpable quantity of dust; but some was obtained and sent to Dr. Voelcker, who, after analysing it, writes: "I have carefully examined the dust which you sent me, and find unmistakably arsenic in it. There is, of course, not a large quantity in it; still, there is enough in about one-fourth of the quantity of the dust you sent me to prove without difficulty the presence of arsenic in that small quantity of dust."

After these reports, I need hardly say that my patient decided to strip his walls and to repaper them. After he had done so, and a considerable time had elapsed, he again sent specimens of the dust from various parts of his house to Dr. Voelcker, who, in a letter dated March 11th, 1873, reports that he finds no arsenic, or a trace so doubtful that he cannot distinctly identify it. It was very unfortunate that the gentleman of whom I have been writing had several other large houses papered and coloured in the same way, and to one of these I shall refer again by and by.

I never was able to satisfy myself that the sore in the nose depended upon the arsenical dust, as I have seen others like it; but it certainly healed when the house had been cleared of the poison. I have not had a single case of a low febrile character in any of the servants since, and I feel pretty sure that their illnesses were caused by the arsenic, because I have seen several exactly similar in people living in green-coloured rooms; and the fact that they had no such cases in the house after the arsenic was got rid of is strong evidence.

These cases would be classed under my first division; but that which I am now about to relate was one in which symptoms due to the paper were added on in the course of an illness whose origin could have had nothing to do with arsenic.

At the end of December last, a little boy came under my care with pleuropneumonia. He was extremely ill, and a large quantity of fluid rapidly collected and filled the left pleura. On January 4th, on introducing an exploratory trocar, I found that the fluid was pus. I let out as much as would come through the trocar. This afforded sufficient relief, and I closed the aperture. No irritation followed; but the chest having tensely filled again, on January 16th I made an incision, and conducted a drainage-tube into the opening, and then out again at the lowest part behind. The result was very favourable; the pleura was drained, and the boy was doing well for such a very bad case, when about five or six weeks after the operation he began to be very sick. The vomiting proved intractable, spite of careful dieting and medicine, and I thought I should lose my patient. I had noticed more than once that the room was lined with a very bad green paper; and when this vomiting continued so obstinate, and the boy became so ill, I said that he must be moved into another. The only one available was, unfortunately, a cold room with a north aspect; but when we had succeeded in raising the temperature to 60 deg., we moved the boy into it. Within two or three days of the change, the sickness had entirely ceased, food was taken readily, and he proceeded to convalescence again.

Now, in this case I have no doubt that the sickness was caused by the paper, and it probably was the worse, because the boy had been so absolutely confined to the room that there had been no chance of cleansing it.

About two months since I was consulted by a lady, who said that she had had a bad cold for five or six weeks, which she could not get rid of, although she had carefully staid in doors, and taken great care of herself. She laid great stress upon the violent fits of sneezing that she had, and these were certainly very uncommon. The character of her coated tongue, and some other features, suggested to me the possibility of arsenical dust; but the paper of the room in which she sat more decidedly attracted my notice. It was one of the usual green papers, but the pigment was very loosely applied, and easily brushed off; indeed, large bare patches on the badly worn surface showed how much

of the colouring matter must have been detached from time to time, and mixed with the dust of the room. I gave this patient some medicine, but soon told her that I thought her illness, and particularly the fits of sneezing, were caused by the irritating dust that was coming off the paper.

Patients are not often very willing to change their lodgings in the winter, and mine did not; but after I had been in attendance for two or three weeks, the illness continuing much the same, her mother fell ill, and she was obliged to go away and nurse her. She had not been more than three days in another house when the sneezing altogether ceased, and she felt better. The tongue, however, remained coated, and she had certainly not got rid of everything that was hurting her; when, her mother being better, she returned to her lodgings, where she was scarcely settled before her fits of sneezing returned with all their original severity. I now insisted upon her changing her rooms, and she soon went into another house. Three or four days after the change, the sneezing came to an end, and gradually in the course of three or four weeks her tongue became quite clean, and, except that she retained a cough, she became quite well.

Upon such evidence as the symptoms and histories of these cases, we all of us daily make diagnosis and treat patients, and I must say that I felt quite satisfied that both this lady and the boy had suffered much from the bad atmosphere in which they were placed; but, upon thinking over their cases, and others carefully, I regretted that I had not subjected them to a more critical analysis, and resolved that, if I met with another example, I would, if possible, collect not only the dust of the room, but also the secretions of the patient, and submit them to an analytical chemist for examination. I had not to wait long for an opportunity; for, within a week or so, a patient came under my care with the symptoms that I have several times enumerated, and which I have said are like what we meet with in a mild case of typhoid. I advised her to remain in her bedroom, and when I visited her there next day, I found that she occupied a room that was ill-ventilated, and papered with a very bad arsenical paper. Each day in this room she became worse, and, it was not until I made her spend as much as possible of the twenty-four hours in her sitting-room, that she began to get better. I will not detail the symptoms from which this patient suffered, for the time hastens me to more important matter; but proceed to say that I requested her to collect some of the dust of the room, and also as much of the secretion from the nose as there might be, also the expectoration, and two quart bottles of the renal secretion. All this was very intelligently done, and I gave the several things into the hands of Mr. Stoddart for chemical analysis. I certainly expected that he would find arsenic in them, but I was not prepared for results so distinct and decided as he discovered.

I have Mr. Stoddart's report before me; it is too long to read in detail, but I may say that the several specimens were submitted to the most searching scrutiny by the best approved tests for arsenic; and Mr. Stoddart says that the presence of arsenic was plainly evident in each; and, after giving a circumstantial account of the various processes employed, he gives the following as the result of his investigation. The quantities found by the several tests are calculated into representative quantities of white arsenic and Scheele's green.

	White arsenic.	Scheele's green.
1. 100 grains of dust from top of wardrobe...	= 0.2 grs.	.36 grs.
2. 100 grains from same room	= 0.16 grs.	.30 grs.
3. Expectoration	Trace.	Trace.
4. 48 ounces of urine	= 0.26 grs.	.5 grs.

This gives, as you will have noticed, the character of the dust of the room, and also the condition of the inhabitant of it as to the presence of arsenic; and I think you will be surprised, as I was, at the positive answer to my inquiry into the absorption of arsenic by individuals occupying apartments papered with arsenical colours.

In less than two days this patient, whom I had diagnosed to be suffering from arsenical disease, had eliminated by the kidneys alone more than a quarter of a grain of arsenic. No doubt this was a bad case, for, besides the symptoms being very marked, it was a very loosely coloured green paper, and there was a large accumulation of dust in the room. I was also able to get a large quantity of the urine so as to make the examination more satisfactory.

I consider that, in this case, the illness was altogether what may be very properly called arsenical disease, or fever, and that it was due entirely to the noxious dust of the room; but, if that be not admitted, it certainly is proved that the arsenic present in such an atmosphere is largely absorbed. It is not to be expected that such a positive result will always be obtained even when there is little doubt that the illness is due to these papers, for although arsenic is present in the body, it may not appear daily in the urine. On this point Taylor says (*On*

Poisons, 1859, p. 36), "It is important to observe that, as in the case of antimony, arsenic may still remain in the body, while it may not appear daily in the urine. In the case of the Duc de Praslin, who died six days after he had taken a large dose of arsenic, the poison was found in the liver and in the intestines, but none was found in ten ounces of the urine passed shortly before his death. In giving arsenic to dogs for a period of nine months, in doses gradually increased, Danger and Flandin state that they repeatedly analysed the urine without finding arsenic. It was probably removed from the blood and temporarily deposited in the soft organs. This deposition may be regarded as vicarious of elimination." It is difficult to resist the temptation to write more on the absorption of arsenic and its elimination; but as my paper is already too long, and the rest may be read with more profit in the books on poisons, and especially in Taylor's work, I forbear; only saying that the "quantity of absorbed arsenic lost by elimination is sometimes very small even when the dose of arsenic has been large; and, citing one remarkable instance to shew how long a time it may be present in the urine after it has been taken. Taylor says, "From the experiments of M. Bonjean of Chambéry, it would appear that arsenic was detected in the urine of a patient, who, one month before, had taken in twenty-four days only three-quarters of a grain of arseniate of soda."

I gave Mr. Stoddart another specimen of urine and one of expectoration, both from the same patient, who, suffering from phthisis pulmonalis, occupied a room with a green paper, but he failed to detect arsenic in either. I gave, also, dust from still a different room; in this he found distinct traces of arsenic, but not enough to estimate quantitatively. I may state here that in no case in which I have submitted the dust of a room papered with a suspicious colour has the chemist failed to detect arsenic, and that very distinctly.

I have had several other cases in which injury has resulted from this cause; but those that have been detailed are, I hope, sufficient to prove the proposition with which I began this paper. I would however, say, that new-born children seem peculiarly susceptible to the influence of the poison. The result is sometimes diarrhoea and sickness; sometimes eczema of the face, and perhaps thrush. In the room from which I removed the little boy whose case I have narrated, his mother was subsequently confined. The baby, which when born was a remarkably fine child, was attacked after a week with eczema of the face, and afterwards with thrush, of which I should not have thought much; but this very week an infant was brought to my consulting-room with eczema and thrush, looking so like the other child, that I was led to inquire after green paper, when I found to my surprise, as I thought that, being a gardener's child, she would have been living in a cottage, that her mother was keeping one of the houses, which have figured so largely in my report, and in which she told me the men were then at work preparing to remove the deleterious colours.

One other example shows how thoroughly the poison permeates the body. In a patient suffering from profuse perspiration, not caused, I believe, by arsenic, but who occupied an arsenically papered room, Mr. Stoddart found distinct evidence of arsenic in the perspiration.

Mr. Stoddart, in his report, draws attention to the peculiarity of the fact that, although arsenic was found decidedly in the urine, no trace of copper could be detected. I mention this merely on account of its interest, as showing the power of selection of the different organs; the kidneys seem to be the chief emunctories by which arsenic is eliminated, whilst copper is more liable to be accumulated by the liver, or excreted in the bronchial secretion. It is further interesting as it agrees with the results that Orfila obtained. Thus, Taylor says (1859, p. 528-29), "Orfila has found the metal (copper) in the lungs, heart, liver, spleen, and kidneys of animals poisoned by it; but he could discover no traces of it in the blood or urine, although it must undoubtedly be conveyed into the blood." M.M. Danger and Flandin have stated that, in cases of poisoning, copper may be detected more readily in the bronchial secretion than in the urine. Christison says, "that in the experiments of Wibmer and of Orfila the poison (copper) was accumulated in particular organs, especially the liver" (Christison, 1845, p. 463).

To return, however, to the immediate subject of this paper. I know that many people are sceptical as to the injurious influence of arsenical papers and colours, and it may certainly be argued that, because in the majority who occupy rooms with these pigments in them, no sign of bad health is found, therefore they are not deleterious; and I imagine that in ordinary circumstances when the rooms are occupied for the shorter period of the twenty-four hours, not much harm takes place; what is absorbed during the night is eliminated by day. But when in consequence of sickness the rooms are inhabited day after day, and week after week, the case, I believe, is far otherwise, and the occupants are liable to become the victims of arsenical disease. Again,

some people, and the number of these is not small, are peculiarly susceptible of the influence of this poison, and they suffer in proportion to their susceptibility.

In more than one of the instances that I have seen, this idiosyncrasy has appeared. In one that I have cited the patient had suffered considerably on a previous occasion; and, in more than one instance, I have heard of the symptoms being increased by arsenic having been prescribed for a person living in one of those places. These idiosyncrasies are familiar to all of us. In administering arsenic, I myself have seen several in which it was impossible to give the ordinary medicinal doses of Fowler's solution from the severity of the irritation produced.

It is fortunate, and the wide-spread use of these pigments seems to prove the fact, that arsenic is not an accumulative poison, and that it is got rid of so easily by the kidneys. If it were not so I cannot but think that we should have much more obvious proofs of the poisonous character of the papers.

In this record I am only anxious to relate facts that have come under my own notice; but I believe that the workmen who make and who hang these papers are liable to suffer considerably. The quantity of arsenic used in their manufacture is something startling. Taylor says: "A manufacturer has informed me, that so great was the demand for this 'cheerful' but poisonous colour, that his average consumption of arsenic amounted to about two tons weekly". (*Ibid.*, p. 430.)

It is generally supposed that the danger is limited to green paper; but this is by no means the case, as I have myself proved. There are various shades of grey and mauve and other colours that are produced out of this poison; and I believe that the only safe plan to adopt is to have the papers analysed before they are employed. Other noxious ingredients are used besides arsenic, but the consideration of them is beyond my present purpose.

It becomes a serious question whether the use of papers for ornamenting walls is not, for more than one reason, an unsanitary proceeding, and whether some other method equally artistic might not be adopted with advantage.

I have already adverted to the medico-legal bearing of this subject. In former times, when great stress was laid upon the finding of very minute quantities of arsenic, and when juries were moved to a verdict by the demonstration of test-tubes containing infinitesimal portions of arsenical products, the absorption of arsenic from a residence in one of the rooms that I have been noticing might have placed a man in danger of his life: but it is to be hoped that the time has quite gone by when the chemical evidence in a case would be allowed to outweigh the moral circumstances and the general history. I can, however, imagine that in case of suspicion of the criminal administration of a poison to a person still living, the finding of so much poison in the secretions as in the case that I have cited, might give rise to serious results, unless the source of the poison could be clearly traced.

In conclusion, I would say that I believe and think that the evidence I have adduced fully proves the existence of disease produced by arsenical papers. I believe, also, that it is very common, and not only so, but the presence of these poisons is apt to modify and influence the course of other diseases and injuries. I have pointed out the symptoms that I have observed, and am sure that by a careful observation of them, the mischief may be detected and remedied.

I know that a great many maladies are attributed by some to arsenical papers which own quite another cause; for, whilst some people are too sceptical, others are far too credulous; and it would be absurd to hold that a case of cancer, or catarrh, for instance, was caused by these poisons, because it should happen to be discovered that the patient was living in a noxious atmosphere; nor would the finding of arsenic in the urine or other secretions prove more than that the person was absorbing arsenic; it would not show at all that their disease was caused by it. But when certain symptoms, which have again and again been noticed by different observers, are found, and then disappear when the patient is removed from the poisonous room, I think we may safely conclude that the disease has been produced by the arsenical colour. At all events, I hold that there is a sufficiently strong case to call for some stringent legal enactment that shall prevent such a deadly poison being scattered broadcast amongst us; and, as in Prussia, the employment of it should be made a crime. But I am afraid that there is not much hope of such an Act of Parliament, for the British mind, notwithstanding modern radical tendencies, is amazingly content with what is, whether it be poisonous or whether it be salutary. Upon us, however, the duty lies to inform the people of the existence of an arsenical disease; and when they are sufficiently educated by us, as they have been in other sanitary matters, action will be taken to prevent it.

CASE OF PUERPERAL CONVULSIONS AFTER DELIVERY.*

By ALLAN D. MACKAY, M.B., Stony Stratford.

AT our annual meeting held in this town in 1865, I had the pleasure of reading notes of a case of puerperal convulsions coming on after the completion of labour. This case afterwards formed the basis of a paper upon this subject, published in the second volume of the *St. George's Hospital Reports*, to which I had been asked to contribute by my friends the editors. In that paper, I ventured to suggest a treatment from which (as the rule) blood-letting was excluded—a plan of treatment, no doubt, at the time thought heretical, yet one which I see is insisted upon, as, in his opinion, the proper and rational treatment of such cases, by Dr. Barnes in those admirable lectures which he has this year delivered at the Royal College of Physicians of London, and which you all, no doubt, have read in our JOURNAL. I have nothing to qualify in the remarks made in the paper alluded to above, nor should I wish to do so after the support of such a skilled and original teacher on the subject; but, when my paper was written (1865), the hydrate of chloral had not been added to our armamentarium of drugs wherewith to combat disease. Now, in the hydrate of chloral I hope we have a most valuable aid in dealing with puerperal convulsions. And this brings me to my case, a few brief notes of which I will now read.

On the evening of February 8th, 1873, I was asked to see a woman who had been confined (by a midwife) at 7.30 A.M. The labour was perfectly natural, though it came on about a month before the expected time. The patient was a handsome and well-made woman, with a good healthy colour. Her legs had been for some little time cedematous, and on February 7th she had headache, her sight failed her, and her husband "could make nothing of her." She was delivered, as I have stated, at 7.30 A.M.—naturally, though the midwife said that, when she first came to her, "she was queer in the head." At 11 A.M., she had "a slight convulsion;" at 1 P.M., "a bad convulsion;" and at 5 P.M., "a still worse convulsion." I saw her about half an hour after this, and found her with a partially furred tongue (she complained of its being sore), a pulse of 112, weak, and her legs slightly, but decidedly, cedematous. She was not quite clear in her head, and was very drowsy, but easily waked up. Her pupils were dilated, and, though they did contract, did not do so thoroughly to light applied quite close to them. I drew off more than a pint of urine with the catheter, and found it of specific gravity 1018, and containing much albumen. I prescribed perfect quietude, broth and milk for her diet, and a draught containing twenty-five grains of hydrate of chloral to be given as soon as she could swallow, in case another convulsion should come on; if none recurred, that she should be left alone, as far as medicine was concerned, till I saw her the next day.

On the following day, I found her with a tongue loaded with a creamy fur, very swollen, and showing traces of having been bitten. Her pulse was 100. She had headache, but could "see a little." No urine had been passed, so I again drew it off with the catheter, and it was still albuminous. The legs still pitted a little. But now for the practical part of my paper, and it is solely for this that I bring the matter before you to-day. Soon after I left her on the previous evening, about 7 P.M., she had "a severe convulsion." There had not been then time for the medicine to reach her. At 11 P.M., she had "a still more severe convulsion;" when this ceased, she was able to swallow the draught (twenty-five grains), and was soon afterwards asleep. She slept for four hours; then woke, saying she "could see a little," and slept again and again. At night, the chloral was repeated, and she had an aperient dose to take during the day.

On the 10th, the tongue was cleaning; pulse 80. The urine was passed last night and this morning. She could see, though still "a little misty." She had to-day no headache, and there had been no more convulsions.

On the 11th, the milk had come, and the urine was passed well. I need not detain you with the progress of the case. She got better each day, and is now perfectly well, the albumen quickly passing away from the urine.

In chloral, then, it would appear we have a grand assistant in these cases. For some time I doubted with myself (hating to believe too soon that the *post hoc* is *propter hoc*) whether the cessation of the convulsions could be due to the chloral or not; but, considering that they were increasing in severity, it seemed that such might be the case. And this is more confirmed in my own mind now, since the appearance in last week's JOURNAL of a similar, though more severe, case occurring

* Read before the South Midland Branch.