A CASE OF
ASIATIC CHOLERA SUCCESSFULLY TREATED
BY THE INHALATION OF CHLOROFORM.

By W. MUTRIE FAIRBROTHER, M.D.

ON Friday, July 27th, I was requested to attend upon a married female, about thirty years of age, stout, active, and usually in the enjoyment of good health. At nine A.M., I found her pale, anxious, and complaining of slight cramps in the limbs and abdomen. She had partaken on the previous day of salmon, and had been shortly after seized with diarrhoea and vomiting, for which brandy had been given. Sickness had left her, but the diarrhoea still continued at intervals. She was ordered to bed, and pills of camphor, calomel, and opium, administered, with chalk mixture. At twelve she was again visited, and was then in great agony from most severe cramps, occurring every three or four minutes, chiefly in the abdomen and loins, and no urine had been passed since the previous evening. Ordered, five grains of calomel every half hour, and ether, sal volatile, and oil of peppermint, in draughts, with the warm bath. No vomiting nor purging present; but the abdominal muscles contracted irregularly, and very strongly, at every accession of pain. Mustard cataplasms were applied to the abdomen and loins. This treatment was persevered in until forty grains of calomel had been taken, and the warm bath again applied. The breath and tongue were cold, the upper extremities also, and the respiration very feeble. At five P.M., she expressed herself much weaker, and after a paroxysm of pain, vomiting came on, while at the same instant a small quantity of urine was passed involuntarily. About an hour after this, the patient was seen by Dr. Lever and myself. Half a scruple of calomel, with two grains of opium, were administered, but almost immediately rejected. The inhalation of chloroform was suggested, and after about one ounce had been used, by means of the sponge and handkerchief, the full effect of anaesthesia was produced, and the cramps gradually subsided.

The next day gastric irritation was peculiarly distressing, but relieved by frequent doses of mercury with chalk, combined with small quantities of calomel. Bicarbonate of potash and magnesia were also given, and the patient is now left to the hands of Nature to complete the cure. The inhalation of chloroform seems most applicable to that form of cholera which is unaccompanied either with vomiting or purging, but is characterized by the severity and frequency of the cramps. In this case it unloosed the spasm, which, judging from cases which have before occurred to me, would, if much longer continued, have probably ended in death.

London-road, July, 1849.

REMARKS ON THE
AID WHICH PATHOLOGY AND THERAPEUTICS
MAY DERIVE FROM ORGANIC CHEMISTRY;

AND ON THE DELETERIOUS INFLUENCE OF A SUPERABUNDANCE OF
CARBONACEOUS COMPOUNDS ON THE HUMAN SYSTEM.

By C. M. MILLER, M.D., &c., London.

WHILE animal chemists and physiologists are daily pointing out the composition of the fluids and solids of the animal economy, it is a matter of great surprise to me that we so rarely hear of pathologists applying, with a view to the lessening disease, the doctrines which the former have established and promulgated.

"Facts are stubborn things," and if they become so evident to our external senses, that the merest tyro can comprehend them, surely they might be applied profitably to the healing of the body in disease.

We are told that the human body is made up of a certain number of gaseous and solid bodies, and that these, when arranged in a particular manner, go to form the materials of which the healthy body is composed; why then, I would ask, should not an increase or decrease of any of these matters produce disease? This would appear self-evident, but it does not seem to have had that due weight given to it to which it is entitled.

Many years have now elapsed since the striking analogy which exists between the miasm producing intermittent and some other fevers and carburetted compounds first crossed my mind, and increasing years and experience have tended to strengthen rather than weaken the idea that they are identical. Both are produced by the same cause, both are impalpable to the senses, (?) and both, I hope to prove, have the same evil

tendency on the human constitution. Carburetted compounds, whether accumulated in the system in a solid form, or applied in a gaseous, are equally poisonous. I purpose, then, in the first instance, to enumerate some particulars of diseases, in which there appears to be an opposite effect produced in the system, and seeing how far these views are carried out, and whether any or no practical bearing can be derived from the investigation. First, then, we may notice the antagonism which is said to exist between phthisis and intermittent fever; and here we have, *in limine*, in the first, a loss of carburetted hydrogen; in the second, an accumulation of carburetted hydrogen; and I would ask, may not the spleen be looked upon as an emunctory, aiding and assisting the liver, by receiving the superfluous quantity of carburetted blood, until the latter organ is enabled to relieve itself. I know a somewhat similar view has been mooted before; but not regarding the spleen as a decarbonizing organ, I was led to this view by noticing, that in those cases where the liver, from disease, was unable to perform its function, there the spleen has been much enlarged, (vide Mr. Langstaff's Catalogue;) that in intermittent fever it is much enlarged, and it is found largest in those animals which live on the most highly carbonized matters, as the ox and sheep.

To return: the effects of naphtha and cod's liver oil may be referred to their supplying the loss of carburetted hydrogen in phthisis, and not, I think, as Dr. Hastings says, with regard to naphtha, to its acting as a solvent of tubercle.

But let us take the other side of the question. Is it not a fact that fevers of the worst description occur in the spring and autumn of the year, and more particularly in the autumn, when the largest quantity of decaying vegetable matter is covering the earth, and giving forth an emanation of carburetted hydrogen; and is it not also a fact that typhus and other fevers arise in the confined courts, alleys, streets, and places where the vegetable accumulations are allowed to remain, and where, although the quantity must be very great, yet can we detect it by no chemical tests, except with great difficulty? Dr. Garrod, in his excellent lectures, published in THE LANCET, says, that in 10,000 volumes of dry air, there have been found four volumes of carburetted hydrogen, but does not say at what season this analysis was made. Mr. Taylor says, that about nine per cent. may destroy life in man. If it take so little to destroy life, surely a less quantity must act as a poison to a certain extent. We have never, I believe, yet had clearly explained what marsh miasma is; but does there not then appear already a strong concurrence between the two causes of disease.

In fevers, again, the secretions are stopped; the skin, the kidneys, the liver, refuse to act; and what is their actions? Is it not the elimination of matters almost entirely composed of carburetted compounds?

Let us for a few moments take a view of some of the effects of disease on these several organs. With regard to the skin, it almost always sympathizes with the rest. But take the kidneys, and of its diseases the worst form, ischuria,—what is the effect of a suppression of urine? Does it not produce typhoid symptoms,—showing that a powerful poison has been absorbed into the system, enervating the nervous centres? Take jaundice: what are its symptoms? Do they not all indicate the same kind of nervous depression? Again, in fevers, erysipelas, and jaundice, when the liver does begin to act, there is generally, and, indeed, most frequently, thrown off, a large quantity of dark, and in many instances almost carbonaceous, matter; and I have noticed that when this is the case the patient does well; but if it be retained the patient continues to suffer. It is on this principle that I consider we derive the benefit from the crises of diseases: does not Nature endeavour, in these diseases, to burn up, as it were, the superabundant carbon by increased respiration and pulsations; and is not the blood highly carbonized in fevers? Simon says, "in typhus the clot is very dark, almost black-red;" and in the inflammatory forms the fibrine is superabundant. Let us take an opposite condition, as phthisis. It has been suggested, and I think with some degree of truth, that phthisis is antagonistic to ague. What do we observe here? A general loss of carburetted hydrogen in all its forms, colliquative diarrhoea and sweats, increased breathing, and all conditions that will carry off the elements of fat from the system. It is true Andral says the fibrine is on the increase in the blood; but this, I think, arises from the increased absorption, and the effort Nature makes to repair the injury already done to the constitution. The advocates for the employment of cod's liver oil and naphtha are, then, practically correct.

These are suggestions, and will require much practice to

carry them to the proof, although, as far as fevers are concerned, I have myself tested their value with considerable success.

And now to apply this theory to some diseases. Erysipelas occurs at the damp seasons of the year, when vegetable matter is in large quantities decaying on the earth. We have spoken of the state of the secretion of the liver.

Cholera, again, occurs at those seasons and places where there is much vegetable decay going on; at least such is the case in this country; and in this disease the liver does not perform its functions. A quantity of light matter is poured out, known under the name of rice-coloured stools. My own conviction is, and it has been verified by my experience in English cholera, that the treatment is to stimulate the liver to renewed action; and not, as recommended in the public journals, to lock up the intestines with opium, astringents, &c. There is a poison in the system, and that poison must be got rid of.

Again, to pass from disease to the ordinary habits of life with some persons. A full meal is taken at night, perhaps an hour before retiring to rest. See the quantity of solid matter that is taken into the blood; and what are its effects? It acts as a poison; the individual has heavy, almost lethargic, sleep; or is restless and dreaming, showing that the nervous system is oppressed; he has no perspiration of much amount; rises with a dry, brown tongue, and, in some instances, slight sordes round the teeth; in fact, he is in a state somewhat similar to typhus; and from it he experiences no relief until he has had a discharge which shall carry off the superfluous hydrocarbon. Again, after taking wine or spirits, the same thing occurs; and in delirium tremens the alvine discharges will frequently be nearly black.

But in the case both of eating and drinking, if the party take sufficient muscular exertion to exhaust the hydrocarbon, he may remain for some time in comparative comfort and safety.

When we take into consideration the vast quantity of carbonaceous matter which is daily taken into the stomach of even the most abstemious person, consisting of animal, vegetable, and fluid materials, and how much of this is superabundant, is it not feasible that this, if kept in the system by a suppression of the natural secretions which carry it off, should act as a poison?

Mr. Taylor, in his work "On Medical Jurisprudence," says the symptoms of poisoning by carburetted hydrogen are,— "Vertigo, cephalalgia, nausea with vomiting, confusion of intellect, loss of consciousness, general weakness and depression, partial paralysis, convulsions, and the usual phenomena of asphyxia;" and how many of these symptoms do we find in the diseases already mentioned? In a greater or less degree, almost all of them.

If, then, it be not true that carburetted compounds are the poisons which are taken into the system, there is a verisimilitude about the whole which is very striking, and which is worthy of a much deeper notice than it has hitherto attracted.

I believe that much more danger, and certainly much more disease, is attributable to the emanations from decaying vegetable, than from decaying animal matter; and in such a case it is more attributable to the carburetted compounds than any other. I state this more from experience than theory. During upwards of three years that I was connected with a public dispensary, and at which time I had nearly eight thousand cases under my immediate care, the severest were always those which occurred in situations where vegetable matters were allowed to collect.

It is interesting to examine what quantity of carbonaceous matter is passed off by the natural secretions of a person in health.

The kidneys secrete, according to Simon, a mean of 432 grains of urea in twenty-four hours. Now, on referring to the table at the end of Dr. G. Bird's work, we find that 100 grains of urea contain 19.99 grains of carbon. Now if, for convenience, we take the quantity passed at 450 grains, we have 89.95, or nearly ninety grains of carbon passed off by the kidneys. The quantity of uric acid is thirteen grains, or, for convenience, we will call it ten grains, giving 3.6 grains of carbon. The colouring matter of the urine is here left out of the question, but, according to Dr. Bird, it is from forty to sixty grains, and this taken at fifty, will give carbon 29.2. There is a great uncertainty as to the quantity of bile which is secreted during the twenty-four hours, but let us take it at one ounce, or 480 grains, say 500. This gives a further supply of 342 grains of carbon.

The perspiration carries off, according to Seguin, quoted by Bird, 107 grains of organic matter, mostly nitrogenous, but

still, no doubt, there is some carbonaceous matter. Taking this at thirty-five grains, or rather more than one-third, we shall have the following total of carbon passed off in a healthy state of body:—

Urine	119.42
Bile	342.
Perspiration	35.

Total... .. 496.42

or, in round numbers, 500 grains. If, then, even half this quantity be retained in the blood, have we not sufficient evidence of a large quantity of poisonous matter acting on the nervous system? Our plan of treatment becomes more rational, and we are enabled to place medicine on a much firmer basis, when such considerations as these are taken into account, in reasoning on the sources of disease. I purpose, at a future period, giving some cases in illustration of this theory.

Claremont Cottage, Stoke Newington Road, July, 1849.

OBSERVATIONS ON THE EFFICACY AND METHOD OF EMPLOYING CHLOROFORM IN VETERINARY PRACTICE.

AND ON A CASE OF TETANUS SUCCESSFULLY TREATED WITH CHLOROFORM.

By PEARSON FERGUSON, Esq.,

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MR. FERGUSON, after calling attention to the objections against the use of anæsthetic agents in veterinary practice, which have been started by Messrs. Morton, Henderson, Cherry, &c., remarks:—

When, however, the details of these experiments are examined, it becomes at once plainly evident that they have been remarkably defective in many particulars. The principal defect, however, is attributable to the apparatus employed, which has either allowed the free admixture of atmospheric air with the vapour in inhalation, or, on the other hand, has been so constructed and applied as to cut off all communication with the atmosphere, and to compel the animal to breathe the same air over and over again.... I must mention, as the greatest difficulties in the way of using chloroform in the horse, next to that of imperfect apparatus, are, the universal fear of lying down when labouring under sickness, and also the great danger of serious bodily injury to so large an animal falling in a state of intoxication. In my practice, therefore, in order to avoid these dangers, and to secure the perfect administration of the agent, I have always had the animal cast; after which, somnolence may be obtained in a very short time, by a method of the simplest nature, which not only secures the inhalation of pure chloroformic air, but also permits perfectly free and unimpeded expiration, and entirely obviates the danger of suffocation.

Mr. Ferguson then cites the following cases:—

A large, powerful, and irritable grey horse, the property of Mr. Hadfield, of Manchester, having disease of the fetlock-joint of long standing, was cast on the right side. A piece of coarse sponge, of the proper size to fill the transverse area, was placed in the left nostril, and saturated with chloroform, through which the animal inhaled the vapour, while the right nostril was closed with the right hand. Then expiration was performed by releasing the right nostril, and closing the one containing the sponge with the left hand; and thus the alternate movements of inspiration and expiration regulated by these manipulations were allowed to proceed for rather more than two minutes and a half, when insensibility was complete, the respiration having become exceedingly slow, the pupil much dilated, and the pulse somewhat increased in frequency. The leg was then fired most severely, the skin having been cut through in many places, but not the slightest symptom of pain was evinced. In this case rather more than an ounce and a half of chloroform was used. The somnolence continued for thirty minutes, when, on sprinkling some cold water on the face of the animal, he got up, and walked somewhat unsteadily to his box.

CASE 2.—A valuable steeple-chase horse, sent from Liverpool by Mr. W. Harrison, who, on placing him under my care, informed me that he had been a long time lame, and treated in various ways without success. On examining him I concluded that the lameness was situated in the foot, and I suggested an operation as the only means likely to relieve it. To this Mr. Harrison consented, and as the animal was ex-