

method of measuring by drops, for the accurate standard of the minim glass.

## II.

From the London Med. Repository.

*Remarks on the Internal Exhibition of the Acetate of Lead, chiefly with the View of determining to what Extent it may be safely administered in the Cure of Diseases, especially in Uterine Hæmorrhages.*

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VERY opposite opinions are entertained by individuals, equally distinguished for their candor and erudition, relative to the internal administration of the acetate of lead; some considering such use of it as a display of unqualified rashness; while others conceive it to be an invaluable remedy in many dangerous diseases; and that its prudent exhibition is not only justifiable, but highly laudable.

That the incautious use of the acetate of lead will produce deleterious effects, would be equally idle and uncandid to deny. The noted colica pictonum, the scourge of so many, both at home and abroad, was, at one time, indeed, attributed to other causes; but ever since the interesting investigations of Sir George Baker on the subject, it has been universally allowed to be the effect of its gradual introduction into the system; and, perhaps, it is this incontrovertible fact that has prejudiced so many against this invaluable remedy. But the production of so baneful a complaint, by the gradual introduction of this salt into the system, is not a conclusive proof, or rather is no

proof at all, that its judicious use may not effect salutary results.

Were this not admitted, then arsenic, the oxymuriate of mercury, and many other articles of the materia medica, with equal, nay, with greater propriety, might be discarded.

Agreeing, then, with those who conceive that the judicious exhibition of this remedy is not only justifiable, but highly praiseworthy, the question to determine will be, what is the judicious use of it?

By its judicious use, I understand the administration of it in such quantities as shall most speedily, and therefore, most safely, cure the disease for which it is employed.

I have said most speedily, and therefore most safely, because I am persuaded that the latter object will be attained in the proportion that the former is accomplished. Paralysis and convulsions, which are sometimes the effects of the insidious introduction of this salt, will, it is presumed, be most dreaded in its internal exhibition; and colica pictonum, its more usual attendant, classed, in point of importance, only as second to these; because the latter is much more under the control of the healing art than the former. But the administration of it in small doses, such as half a grain, in uterine hæmorrhage, does not appear to be the proportion best calculated, most speedily, to effect a cure. And as such a mode of exhibition, from the slow operation on the disease, will ultimately require a greater quantity to be used than if the doses had been larger, so it resembles more the insidious manner of its introduction from the manufactories, and

by food, by which those effects most to be dreaded, paralysis and convulsions, are produced. It cannot, therefore, be the most safe or judicious mode of its exhibition.

Some information on the subject, perhaps, may be obtained, by observing the effects produced by certain quantities on the animal economy. From the experiments of Orfila it appears that from one to three grains of the acetate of lead have been frequently injected into the jugular veins of several weak and middle sized dogs, without their having appeared to be incommoded by it.\* And judging from analogy that medicine produces nearly the same effects on animals as on man, we seem to be justified in employing similar quantities, in the cure of diseases. In these experiments, however, it was directly introduced into the circulation, whereas, in the cure of diseases, the circulation is only indirectly affected, and will therefore require, to produce similar effects, a proportionally greater quantity. But what this quantity is, or ought to be, does not, from these experiments, clearly appear.

Examples, it is true, are given of larger quantities having been introduced into the stomach, even to the extent of a drachm and a half in the solid,† and to a whole ounce in the liquid form,‡ without material injury having been sustained. But as both the animals immediately vomited, the experiments do not show what the result would have been, had these quantities been retained. This, how-

ever, from the known effects of the salt, was not to be expected. To ascertain the quantities which could be received and retained in the stomach, and to observe the subsequent effects of them on the animal economy, do not indeed appear to have been the objects of the experimenter; but rather to determine the nature and extent of injuries sustained by the operation of excessive quantities, with the view of adopting the most efficacious remedies, whether these quantities had been taken by accident or design.

Valuable, then, as these experiments are, for having unfolded some of the effects produced by the internal exhibition of this salt, yet we are still left to inquire, what quantity is the most fit for, most speedily, and therefore most safely, curing diseases.

At the Western Dispensary, for the complaints of women and children, I have often seen Dr. Henry Davies successfully employ it, in cases of uterine hæmorrhage, in doses of two grains, combined with opium, to be taken every third or fourth hour, till the complaint was removed, or unfavorable symptoms from its use induced. In the same complaint, and in similar doses, I have given it to the extent of ten grains daily, for four successive days. This, however, was not done without great anxiety, and close attention to its effects. No unpleasant sensation having been complained of, and no deleterious symptom having made its appearance, the case, from the patient not having been able to comply with the injunctions to rest, required the remedy, though reluctantly, yet, as it ultimately proved, safely, to be pushed thus far. Although, when

\* Vol. II. Experiment 1st, p. 461.

† Ibid. Experiment 1st, p. 464.

‡ Vide his Toxicology, Vol. 1. p. 460.

patients are in circumstances which render compliance with the almost indispensable requisites, rest and quiet, easy, it is rare that more than one half of the above quantity is ever necessary; yet even with them, in extreme cases, it may occasionally happen that the remedy must either be pushed farther than forty grains, or abandoned in despair, as incapable of removing the malady.

In such cases it becomes a question of moment, satisfactorily to determine, whether it be really justifiable thus to proceed without being aware of what the ultimate consequences may be. This question I was anxious to set at rest. On the one hand, from the extent to which it had been carried, without having other than salutary results, inclined me to believe that it might be safely extended still farther; but, on the other, I was not aware of any example of its having been employed in a greater quantity, or even to the same extent.

Were we to remain satisfied that the healing virtues of this remedy had been absolutely developed by the extent to which it has been carried? I was much disinclined to accede to this supposition. But the circumstance of there being no example, at least known to me—and all are aware with what tenderness virgin ground requires to be trodden—started up, in formidable array before me, the phantoms, paralysis, convulsions, colica, and perhaps even death, as the possible, if not the probable, result of going forward. The probability of one, or of all these circumstances happening, was, however, objectionable, chiefly on the supposition that they occurred in the persons

of those whose health and safety we are engaged and bound to preserve to the utmost of our skill, without the risk of danger. To obviate this objection, I prepared for myself the following prescription, which I purposed to continue till the occurrence of circumstances which might indicate the contrary:

R. Plumbi Superacetatis, 3j.

Opii, gr. viii.

Extracti Gentianæ, 3j.

Acidi Acetici dil. q. s.

Subige in massam dividendam in pululas octodecim æquales, e quibus, ter quotidie, una sumatur.

Sept. 12th. When the taking of these pills was commenced the health was perfect, and no deviation from this state was observed till the evening of the 14th, when the pulse was found somewhat slower, and a metallic taste in the mouth.

16th. The last two pills on the 14th were taken within two hours; no unpleasant effects have been experienced from that circumstance; pulse, whilst in bed, sixty, and indistinct; after exercise, sixty-four, and more distinct; metallic taste stronger, with some tenderness of the gums; but having been engaged for some days in putting up preparations in a solution of the muriate of mercury, am in doubt whether the tenderness of the gums is to be attributed to this circumstance or to the acetate of lead. Forty grains having now been taken, the last seven within two hours of each other, without any other perceptible inconvenience having been produced than a metallic taste, and perhaps some tenderness of the gums and constipation; it was now wished to ascertain the ef-

fect of a larger dose ; ten grains were therefore taken at once : immediately after, slight pain of the stomach and nausea were felt ; pulse fifty-eight, and weak.

17th. Hora septima, A. M. Pain of the stomach and nausea did not increase after last report ; sleep much disturbed from dreams ; pulse whilst in bed fifty, and so indistinct that it was counted with difficulty ; no stool since the 12th ; urine diminished, and high colored ; some inconvenience experienced from weakness, especially at the knees.

Hora octava, P. M. Was awoke at this hour with severe and unremitting pain of the stomach and nausea ; vomiting suppressed with difficulty. Immediately took three drachms of the sulphate of magnesia in solution ; pain instantaneously much relieved ; shortly after went to sleep ; awoke at seven, and found the pain entirely gone ; repeated a similar quantity of the sulphate of magnesia ; pulse sixty, weak but distinct ; weakness of the knees somewhat diminished ; urine more free, of a dark olive color, and sweetish.

The pain did not return, and without further assistance from medicine, in a few days, I had perfectly recovered from every unpleasant sensation. When the experiment was commenced, paralysis and convulsions, which are the severest, but rather the accidental than the usual effects of the introduction of this salt into the system, were not much dreaded ; but it certainly was expected that I should have been able to have continued it until colica was induced. The interruption which prevented this effect, I think there can be no doubt, must be attributed to the last dose, ten

grains. I shall, however, shortly resume the experiment, and hope, by continuing the three-grain doses, to be able, by the result, to ascertain not only the most appropriate quantity for a dose, but also the extent to which it may be safely given for the cure of diseases, without the hazard of inducing others.

In the meantime, it is presumed, it will be deemed allowable, from this experiment, to infer that the acetate of lead, combined with opium, may be given in fully three-grain doses, to the extent of ten grains for five days successively, without danger of inducing colica pictonum.

This much, I think, may be safely asserted, both as to the mode of its exhibition and ultimate extent. Because, although uneasiness was experienced, yet that uneasiness was, unequivocally, not colica, but gastrodynia, and it is presumed, was evidently referrible, not to the aggregate amount of the acetate of lead taken, but to the excess of the last dose ; not to the specific effect, as colica is presumed to be, but to the styptic quality of the salt. The sensation, excepting the nausea, precisely resembled in kind, though much greater in degree, what I have often experienced from eating acid fruit, such as sour plums. That the pain arose from the styptic quality of the salt, appears to be corroborated by the instantaneous relief obtained, as I conceive, from the decomposition effected in the stomach by the sulphate of magnesia. Besides, in colica pictonum all kinds of ingesta, for the most part, increase the pains, and the disease requires days, if not weeks to be subdued ; but the removal

of the pain in the experiment was almost instantaneous.

No perceptible inconvenience was felt as long as the doses, which were somewhat more than three grains, were continued as at the commencement, and only slight nausea when two of them were taken within two hours ; from which it may be presumed that, in severe cases of uterine hæmorrhage, such doses may be given every second or third hour, until the discharge is suppressed, nausea induced, or fifty grains taken.

Of the influence of this salt on the animal economy, that on the circulation appears most worthy of attention. The pulse, at the termination of the experiment, was as slow as fifty pulsations in a minute. It was observed to be similarly affected in four of the six cases of colica pictonum quoted by M. Orfila from the dissertation of M. Merat.\* In one of those cases it was so slow as to give only forty pulsations in a minute. This sedative property is particularly valuable in hæmorrhage, by diminishing generally the irritability of the whole system, and especially that of the affected part, and, consequently, the impetus of the circulation, to some extent. To obtain this effect, rest and quiet must be strictly maintained, for even by gentle exercise the pulse rose from four to ten pulsations in a minute.

But as a valuable remedy in hæmorrhage, not only are its sedative properties to be considered, its decisive astringent qualities are also to be taken into view. These seem to operate, not only

when immediately applied to the affected part, but also nearly with equal success, when extended by sympathetic action. These were in some degree evinced in the experiment, by the diminished secretion of urine, and the constipating effect on the bowels. But more decisively have they been marked in some cases which I shall hereafter record, where the suppression of the discharges was distinctly and unequivocally referrible to their operation. The vast superiority of this medicine, to every one of its class, appears to depend, not on either of the above properties taken separately, but on their conjoint action, and that too in a way peculiar to itself ; for the combination of sedatives and other astringents is not found to produce similar effects. In a severe case of hæmatemesis where this was tried, no perceptible impression had been made in checking the malady ; but the operation of this invaluable remedy was conspicuously decisive. The vomiting never returned after the first dose. It is also, perhaps, to the conjoint operation of the sedative and astringent properties of this medicine, that vertigo, in another case, was removed at the same time that the hæmorrhage was suppressed. And to the same I attribute its valuable results in all diseases where it is an object of importance to suppress either hæmorrhages or increased secretion, such as happen in Epistaxis, Hæmoptysis, Hæmatemesis, Hæmorrhagia Purpura, Hæmorrhoids fluens, Menorrhagia, Hæmaturia, Leucorrhœa, Gonorrhœa, Diarrhœa, and Dysenteria.

In its exhibition it is indispensable that it should be in all cases

\* Vide Toxicology, Vol. I. p. 466 to 473.

combined with opium. The proportion of opium requisite will, necessarily, vary according to the peculiarities of the constitution of those to whom the salt is to be administered. In general, however, one of opium to eight of the salt will be found sufficient to prevent griping. If that be inadequate, it must be gradually increased, until the inconvenience is obviated.

Perhaps crumb of bread makes the best pill mass, or equal parts of that and extract of gentian, with a sufficient quantity of distilled vinegar or water. As sugar partially decomposes it, neither conserves nor syrups are proper for the formation of pills. As it is very easily decomposed, to insure its proper effect, it is of importance, during its exhibition, carefully to avoid, not only the alkalies, neutral salts, and mineral acids, which decompose it rapidly, but also the alkaline earths, and their carbonates, which, although they do not produce that effect so entirely, yet diminish its properties so materially as greatly to vary its results. Broths also decompose it, and likewise porter. But what ought particularly to be remembered, as most likely to be overlooked, is, that the same effect is produced by a strong infusion of tea. Wine does not affect it with the exception of Burgundy. But so much is it disturbed by a variety of other articles of food, that I always order it, if possible, to be taken equi-distant from meals. If the stomach can bear it, a wine-glassful of equal parts of distilled vinegar and water, half an hour after each dose, will render its effects more certain.

As the design of this paper is

not to give a history of the salt, it was not deemed necessary to enumerate every unpleasant symptom that might, accidentally, by its exhibition be induced: with these, it is presumed, your readers are sufficiently acquainted. Colica pictonum almost exclusively, and that too in general terms, has been referred to as its most usual attendant. Whilst, therefore, no unpleasant sensation during the exhibition is to be neglected, yet the chief care is to be directed against the inducing of this complaint, the principal symptoms of which are the following: Gripes, more or less severe, affecting the abdomen generally, but at length they come on in fits, and are then referrible to the course of the colon, chiefly to its transverse portion, with such a degree of intensity as to be almost insupportable. Should such symptoms, on any occasion, unfortunately supervene after the exhibition of this medicine, the most effectual remedy appears to be the free administration of the sulphate of magnesia, and opium in the form of pills. Let the bowels be freely opened with this salt, and from one to three grains of the opium given, according as the degree of pain may require.

### III.

#### SELECTIONS FROM FOREIGN JOURNALS.

##### *Treatment of Croup.*

The following remarks on the treatment of Croup are extracted from a late edition of Laennec on the Diseases of the Bronchia. Some physicians no doubt would disagree with him in his opinion of the source of the principal danger in this disease, and not many will learn from