opportunities of making themselves familiar with the phenomena of mental disease, frequently hurry its victim into the commission of every species of crime and depravity, with a power far more irresistible than anything which can spring from the influence of others." (p. 4.)

We had marked several other paragraphs for quotation, but our want of space obliges us to omit them.

The crying evil of the mode in which the evidence of medical experts is obtained under the present system is pointed out by Mr. North, and the true remedy insisted upon, viz., the entire independence of the medical witness of the prosecution on the defence, his report (which ought to be in writing) being addressed to the Court. Whether any good is to be gained by allowing cross-examination is an open question. If allowed it ought, we consider, to be restricted to the judge. When we compare the admirably written reports of the French experts with our own miserable *vivâ voce* examinations in Courts of Justice, we are humiliated to see how much better they manage these things (as well as some others) in France.

In conclusion, we sincerely thank Mr. North for bringing forward this subject so strongly and lucidly on the occasion referred to, and trust that the influence of his remarks will be permanently felt in legal quarters. York has been prominent in the amelioration of the condition of the insane; it was fitting that, when the Social Science Association met within her walls, the true and only humane test of moral responsibility should be clearly preached, and a protest be entered against consigning the morally insane to the gallows.

D. H. T.

On the Urine of the Insane: a Contribution to Urology. By Adam Addison, L.R.C.P. and S. Ed., Resident Medical Officer, Montrose Royal Lunatic Asylum.

(*Reprinted from the 'British and Foreign Medico-Chirurgical Review' for April*, 1865.

Mr. Addison's paper on 'The Urine of the Insane' is a most valuable contribution to the pathology of insanity, reflecting credit alike on his industry and research. Most of our knowledge of the chemistry of the urine in insanity, he reminds us, is derived from a paper on this subject published by Dr. Sutherland in the 'Medico-Chirurgical Transactions of 1855.' The conclusions arrived at by the author of that essay were the following:

1. A plus quantity of phosphates exist in the urine in the paroxysms of acute mania.

2. A minus quantity exists in the stage of exhaustion of mania,

in acute dementia, and in the third stage of general paralysis of the insane.

3. The plus and minus quantities of the phosphates in the urine correspond with the quantitative analysis of the brain and of the blood, for a plus quantity of phosphorus is found in the brain, and a slight excess of albumen in the blood of maniacal patients, and minus quantities of phosphorus and albumen are found in the brain of idiots, and a minus quantity of albumen in the blood of paralysis of the insane.

4. The plus quantity of phosphates in the urine of acute mania denotes the expenditure of nervous force, and is not a proof of the existence of acute inflammation in this disease.

Unfortunately, says Mr. Addison, the method of investigation adopted by Dr. Sutherland was not such as to give reliable results. It was the old and now obsolete one of determining only the percentage amounts of the urinary constituents without reference to the quantity of urine passed in a given time. No doubt it is true that, as Dr. Sutherland expresses it, there is a plus quantity of phosphates in one thousand grains of the urine of a maniacal patient as compared with the amount found in the same measure of urine passed in the normal state; but then the patient in acute mania may be voiding from ten to twenty ounces only in the twenty-four hours, whilst in health he excretes from fifty to eighty; consequently it may happen that, after recovery, with a greatly diminished percentage of phosphates, he actually excretes a larger quantity than during the maniacal paroxysm.

The mode adopted by Mr. Addison has been to collect the whole urine passed in twenty-four hours for three or more successive days, and to ascertain by analysis the absolute amounts of certain of its constituents excreted during that time. Dr. Sutherland refers to the impossibility of collecting all the urine during mania; but it is his experience that there are many cases where this can be done.

By careful attention on the part of the night attendant, and by placing a special nurse with the patient during day, he has perfectly succeeded in obtaining all that has been passed; and he confidently declares that the quantities he has given are correct. In acute cases which have recovered he has always compared the urine of the abnormal state with that of the normal, because the individual healthy standard must always be more correct than the average of a number of cases. In dementia and melancholia, where such a comparison has been impossible, he has adopted two methods. Firstly, he has compared the quantities voided under such conditions with those passed by healthy men and women, irrespective of age and weight; and, secondly, he has found the amounts excreted by 1 lb. avoirdupois of body weight in twenty-four hours, and contrasted them with the normal standard ascertained in the same way.

In order to facilitate this comparison, Mr. Addison gives, in the following table, made up from Dr. Parkes's book, 'On the Urine,' the amounts of those constituents which he has made the subject of examination; first, as they are excreted in health (age and weight indifferent); and, second, according to a definite weight of body:

Constituent.	Males. Minimum.	Mean.	Maximum.	1 lb. excretes in 24 hours in grs.	Females. Minimum.	Mean.	Maximum.	1 lb. excretes in 24 hours in grs.
Chloride of sodium	. .	177·0	. .	. .	. .	. .	. .	. .
Urea	286·1	512·4	688·4	3·53	. .	390·0	. .	2·96
Phosphoric acid	24·70	48·80	79·80	0·336	. .	56·2	. .	0·464
Sulphuric acid	17·34	31·11	41·14	0·214	. .	30·2	. .	0·25

After giving the detailed results of his analysis in sixteen cases of acute mania, he proceeds thus to summarise these results:—

The first fact observed on examining these tables is the remarkable diminution of the quantity of the urine which takes place during the course of a severe maniacal attack. This decrease appears to have an inverse relation to the rapidity of development and the intensity of the paroxysm, for in the milder cases it is not nearly so great. Nor is this wonderful when we consider how much of the watery elements of the blood must find an outlet through the skin as a consequence of the muscular exertions which accompany the restlessness, violence, and gesticulation of mania. The specific gravity of the urine in such attacks is also high; there is an excess of solids, and, on standing, a considerable quantity of sediment, especially of urates, is deposited. Owing to the want of a volumetric test for uric acid, I have been unable to subject this element to examination. The per-centage amounts of all the organic and inorganic constitutions are raised very far above the normal. In all my cases the urine was acid—very intensely so in the more severe forms—and in this my experience agrees with that of Sutherland.

Out of 16 cases the quantity of chloride of sodium was found less during mania than after convalesence in 14; nor is it inconsistent with dietetic and physiological principles that it should be so, for maniacal patients do not show much solicitude respecting condiments, whilst a considerable amount must find its way out of the body in other directions. The excretion of urea was diminished during the maniacal paroxysm in all the cases. The quantity of phosphoric acid excreted in states of mental excitement was less than after convalescence in all the cases except one, in which the analysis was made during a lucid interval and under unfavorable conditions. This, perhaps, is the most important fact elicited by the investigation, for a greater than the average excretion of the phosphates as come to be

regarded as a pathognomonic phenomenon of maniacal excitement. In two cases where I had an opportunity of examining the urine immediately after the appearance of maniacal symptoms, I found that the quantity of phosphoric acid excreted on the first day was larger than the average daily excretion after convalescence; and from other observations I am disposed to believe that this often, though not always, occurs, for when the quantity of the urine is greatly diminished by a rapidly developed and severe mania, the amount of phosphoric acid is also lessened. I have known patients in whom there seemed to be a sort of suppression of urine, and from whom I could obtain no water for twenty-four or thirty-six hours. When it did appear, it was loaded with solids, but in quantity greatly below the normal. These facts would seem to suggest that the quantities of the urinary constituents excreted under such conditions are not to be regarded as anything like an absolute measure of tissue change; that, in fact, large amounts may be retained in the blood from the want of water to dissolve and wash them out. This, however, is but a suggestion, and does not interfere with the actual excretion by the kidneys, which is the question at issue.

Again, though the amount of phosphoric acid excreted on the first day is higher than the normal daily average, the period of this increased excretion is so short, and, as I have said, so inconstant, and the fall in the quantity of the urine on the succeeding days so extreme, that it would be unphilosophical to regard it as an isolated fact. The better method, then, is to ascertain the absolute amount of phosphoric acid excreted during part of the course of a maniacal paroxysm greater than twenty-four hours, and to compare it with the quantity passed during an equal time after convalescence. This I have done, and the daily results I have given of the parts of a course of mania correspond exactly with the daily results of the whole course, as I have ascertained at different times; consequently I consider it sufficiently proved that the quantity of phosphoric acid excreted during the course of a maniacal attack is less than that voided in an equal time after recovery. In 11 cases the amount of sulphuric acid excreted during convalescence was greater than during mania; in 5 cases it was larger in the latter condition.

The following table shows the mean of the average daily quantities of the urine and its constituents excreted by all the cases during mania and convaleseence.

	During mania.	During convalescence.
Quantity of urine . .	23·9 oz. . .	58·4 oz.
Specific gravity . .	1025 . .	1016
ClNa . . .	35·94 grs. . .	59·98 grs.
Urea	328·14 . .	475·70
PO_5	22·14 . .	30·54
SO_3	21·42 . .	23·07

Mr. Addison next records the results of his analysis in eleven cases of melancholia. All these cases of chronic melancholia and monomania of fear (he says) give results very far below the mean in healthy men and women. In two cases, the amount of urea is about normal. The following table gives the mean of the daily average excretion in nine cases. I have included the male and female cases in the same group, but the amounts do not differ so much as to affect the result:

ClNa	36·67 grs.
Urea	270·44
PO_5	20·04
SO_3	13·08

Mean excretion according to weight, in eight cases:

1 lb. excretes in grs. in 24 hours.	
ClNa	0·267
Urea	1·961
PO_5	0·139
SO_3	0·090

A reference to the table made from Dr. Parkes' book will show that the results as to weight are remarkably below the mean in health.

The small amounts of urinary constituents excreted by melancholics may be accounted for from their indifference to their food, their apathy, bodily torpor, languor, and inactivity. According to the prevalent theory, one would have expected a large excretion of phosphoric acid as the consequence of mental anxiety, but such does not appear to be the case.

The analysis in eight cases of general paralysis then follows. These show, writes Mr. Addison, that in states of excitement the quantities of chloride of sodium, urea, phosphoric and sulphuric acids are less than in the quiescent state. In the demented cases quantities are about normal—some slightly above, and some below, the mean. In two cases, the excretion, according to weight, was also very near the mean healthy standard, and in one, the phosphoric acid was above it when compared without reference to weight. In the last stage of general paralysis it is impossible to obtain the twenty-four hours' urine, but I have no reason to suppose that the result would differ much.

Lastly, the analysis in 14 cases of dementia and idiocy are given. The amount of phosphoric acid was less than the mean in all cases, but in none was it below the minimum; and in four cases the excretion by one pound of body weight was greater than the healthy mean. Two, who passed a larger than average quantity of phos-

phoric acid according to weight, were congenital idiots who could not speak, another, a case of so-called acute dementia, and the fourth had been two years demented. With such facts as these in view, and considering that in none of the twelve cases was the average daily excretion of phosphoric acid below what has been found by several observers in healthy adult men, Mr. Addison cannot altogether endorse Dr. Sutherland's statement that there is a minus quantity of phosphates in the urine of dementia. *Indeed, he believes that the excretion of phosphoric acid is regulated more by the condition and weight of the body than by the action of the brain.* No doubt, in an ill-conditioned dement, who does not take his full quantity of food, the absolute amount of phosphoric acid excreted will be small compared with the heathy mean, but less so when contrasted with the mean healthy excretion by 1 lb. of body weight.

The following table gives a comparison of the mean daily excretion of 12 cases, with the mean amounts in health :—

Constituents.	In dementia.	In health.
ClNa	64·92 grs.	177·00 grs.
Urea	517·24	512·40
PO_5	35·20	48·80
SO_8	27·03	31·11

The next shows the mean excretion in 11 cases by 1 lb. of body weight in twenty-four hours, compared with the normal mean found in the same way :—

In dementia 1 lb. excretes in grs. in 24 hrs.		In health 1 lb. excretes in 24 hours.	
ClNa	0·557		
Urea	4·311	Urea	3·53
PO_5	0·291	PO_5	0·336
SO_3	0·216	SO_3	0·214

It will be seen from these tables that the differences between the quantities in dementia and in health are no greater than occur in individual healthy cases.

The conclusions which Mr. Addison deduces from the whole foregoing observations are :—

1. *That the quantities of the urine, of the chloride of sodium, urea, phosphoric and sulphuric acids, excreted during the course of a maniacal paroxysm, occurring in acute mania, epilepsy, general paralysis, melancholia, or dementia, are less than the amounts excreted in an equal time during health.*

2. *That in chronic melancholia the quantities of the chloride of sodium, urea, phosphoric and sulphuric acids are reduced below the mean, and sometimes the minimum, of health.*

3. *That in idiocy, dementia (paralytic and common), the urea, chloride of sodium, and sulphuric acid range above and below the normal mean of health; that in some cases the amount of phosphoric acid is greater than the mean according to weight, but in the majority of cases it ranges between the minimum and mean found in healthy adult men.*

I shall be satisfied if these observations serve no other purpose than to point out the foundation upon which an exact pathology of the urine of the insane must be built. My thanks are due to my chief, Dr. Howden, for facilities given to make this inquiry.

On a Simple Method of Treating Certain Kinds of Epilepsy, Dementia, and other Chronic Head Affections. By THOMAS LAYCOCK, M.D., &c., Professor of the Practice of Medicine and of Clinical Medicine, and Lecturer on Medical Psychology and Mental Diseases in the University of Edinburgh.

('Med. Times and Gazette,' May 6th and May 13th, 1865.)

THIS "simple method" of Professor Laycock for the treatment of epilepsy, headache, and delirium, and chronic mental defects, consists in the application of irritants to the nostrils. Dr. Laycock made his first experiments with strong liquor ammoniæ and snuff, but subsequently he had recourse to medical compounds. "After various trials," he says, "I have found the following a safe formula for a sternutatory:—℞ Pulveris cinchonæ, gr. lx. Pulveris hellebori albi, gr. x, misce intimè. Sigma. 'The *sneezing powder*.—A very small pinch to be placed just within the nostrils three times a-day, so as to excite frequent sneezing for ten minutes. To check the sneezing, if necessary, wash out the nostrils with cold water snuffed up.' I have seen dangerous sneezing excited by the powdered hellebore. It would be easy to devise other formulæ. The Greek physicians prescribed pepper, euphorbium, soapwort, gith (or *nigella sativa*), elaterium, and castor in powder. They also injected the nostrils with the juices of pimpernel, leeks, and other plants, and mixed the juice of elaterium with milk for an injection. Aretæus mentions in his chapter on the treatment of cephalæa a syringe with two delivery pipes, made expressly for the nostrils. He also blew powders up the nostrils through a reed or quill, and applied ointments and liniments within the nostrils by means of a feather. Any irritant thing easily removed and manageable as to its effects on the mucous membrane would, doubtless, serve the purpose. Aretæus ascribes, however, valuable uses to powdered castor beyond its mere effects as an errhine or sternutatory. In so far," he continues, "as