Thesis on Malaria

[Signature: Thomas F. Macalagam]
It has long been a recognized and well-known fact, that the form of urinary calculus, by no means uncommon in its recurrence, and often from its external characters the Mulberry Calculus, is composed chiefly of urate of lime. The extreme rarity of this substance as a urinary deposit has often attracted the notice of writers on urinary disorders. Dr. Kent in his 2nd edition of his work on the nature and treatment of affections of the urinary organs remarks, that "urate of lime every month if ever appears alone under the form of an amorphous sediment;—in some instances it occurs mixed with the other amorphous sediments, but even this is not very common—its appearance is still more rare under the form of crystallized gravel." He adds that he had only seen one instance of this, he is able to refer to one more only. Such was the general opinion of the profession at the time at which Dr. Kent wrote this. More recent and careful observations, however, enabled Dr. Golby Bird to demonstrate that the prevalent opinion of the profession
on this subject was quite erroneous, and that the occurrence of oxalate of lime as a crystalline uric acid deposit was far from uncommon.

It might at first seem remarkable that this should so long have escaped the notice of medical men. But the slightest reflection affords a ready explanation why this happened.

When urine acid, urate, tricalcium phosphate, are injected in the urine, they form a distinct deposit whose nature can in most cases be determined by the naked eye, and in those cases in which this cannot readily be done, the microscope at once reveals the form of deposit with which we have to do. But with oxalate of lime the case is quite different, for without the aid of the microscope it is impossible to detect this salt in the urine, and even with its valuable aid it is afforded it is very apt to escape observation unless certain means be adopted for its demonstration if its presence. Oxalate of lime dems
to be possessed of much the same density as the wine, and for this reason does not
form in general any distinct deposit, but in some cases remains suspended in the
fluid for days, even when the crystals are so abundant that they may be detected
simply by placing a drop of the wine under the microscope without any previous
preparation. Another circumstance which renders these crystals liable to be
overlooked is the fact that they have
much the same refractive power as the
wine, so that a cursory examination
may fail to detect them in the field
of the microscope when they really are
present, if a drop of the wine containing
them is simply placed on the glass.
The means which are usually adopted
for detecting the presence of the salt in
question effectively counteract these
untoward circumstances—a little of
the wine (by preference from the lower
part of the vessel in which it stands)
is placed in a watch-glass, to this apply
heat by means of a spirit lamp, among
He found at the same time in such a manner as to communicate a slight rotary movement to the contents of the glass, the
draw off the greater part of the wine by means of a pipette, replace it with distilled water. If crystals are present in any quantity they become visible to the naked eye as a white crystalline deposit dep-
spot in the centre of the glass. Under the microscope this is often to consist of numerous octahedral crystals. In some cases,
I have already remarked, the crystals are so abundant that they may be de-
tected simply by placing a drop of
the urine under the microscope; when
this is the case they may generally be
detected in considerable quantity in the
buboes cloud which falls at the bottom
after the urine has stood for some
time; and if any other deposit be
formed, it will certainly carry abun-
dance of the crystals of lime along with
it. In few cases in which it had been
formed by Dr. Port, previous to the time
at which he wrote the sentence which
I have quoted above, some of the cases in which I occurred "mixed with the brittle amorphous sediments."

The crystals are generally octahedra, have very distinct sharply defined edges and angles, are transparent colorless, and in good light a distinct cross may be seen whole arms intersecting each other in the centre of the crystal, at a point corresponding to one of the angles of the octahedron, the extremities of the arms forming, as it were, the angles of the crystal.

In general the crystals are of small size, and sometimes so minute as to appear under a low power like minute dots, which, however, become distinct octahedra under a higher power.

Gærd and other writers have described these octahedra as crystallizing in the regular or cubic system, chiefly because they do not possess the property of polarizing light; Gærd says that "it is well known that crystals referable to the cube or regular octahedron never possess double
refraction, and hence leave no exert any influence on a plane polarized ray of light. In accordance with this law, the ordinary crystals of oxalate of lime do not in the slightest degree exhibit the phenomena of d'Isone when examined in the polarizing microscope, merely in the slightest degree, if lying in a favorable position, appearing illuminated when the polarizing prisms are crossed. Dr. Widdicombe, on the other hand, in his work on the pathology of the urine, says that the oxalate of lime crystallizes in the quadrangular, and not in the cubic system, and that an examination repeated frequently and under a variety of circumstances seemed to have for its result that the oxalate of lime presents a certain degree of polarizing James, that they appear distinctly as elongated squares.

Dr. Widdicombe an experiment of an American Physician, Mr. Bacon, in which that gentleman states that
by dissolving artificially prepared 
opalate of lime in Hydrochloric acid, 
and allowing it to evaporate spontaneously.

The obtained, among other forms of 
crystals, four-sided prisms, which on
analysis were found to have
opalate of lime. This fact is regarded
by W. Thompson as perhaps the
strongest possible reason why the
opalate of lime cannot crystallize in
the cubic system, for this "by the
nature of its axes, three axes of equal
length, and at right angles to each other
precludes the possibility of a prism
or column occurring in it."

Pelle described opalate of lime as
crystallizing in well defined octahedra,
the axis of which is longer than the other,
drawn to drawings which represent
very correctly the appearance which these
crystals have, as seen in different
positions. A crystal which has the
appearance of a regular octahedron,
when viewed in the position, may, by
causing it to roll about, be made
to present to the observer a shape different from that which is at first perceived and appears to be a quadratic octahedron. This, I think, is the probable explanation of the difference of opinion which has existed as to the true form of these crystals. From the arguments of Dr. Studichius, as well as from many careful examinations which I have myself made of the appearance of these crystals when viewed in various aspects, I am led to think that that gentleman is correct in stating that sylvite of these crystallizes in quadratic octahedra.

There is a peculiar appearance presented by these crystals when allowed to dry, worthy of notice, that of a small obtuse triangle set in a larger obtuse one, the angles of the one being opposite to the sides of the other.

There is another very interesting form which crystals of sylvite sometimes present, and which, too, has been the subject of many examinations for the purpose
of ascertaining both their exact chemical composition, and their mode of formation. These are the dumb-bell crystals. In the first three editions of his work, Dr. Bird described these crystals as consisting of oxalate of lime, but in the last edition he describes them as consisting of oxalate of lime; this he does on the ground that their powerful action on phosphorescent light is quite incompatible with their being composed of oxalate of lime. He has also detailed five experiments which he performed with the view of proving that these were not really oxalate of lime, but which I think have completely failed to do so.

In the American Journal of Medical Science, some years ago there appeared a statement made by an American physician, Dr. Bliss, to the effect that these dumb-bell crystals contained no lime, but really consisted of uric acid, a statement which he made without having any better grounds for doing so, than that uric acid sometimes presents itself in a form approaching the dumb-bell.
Dr. Bacon performed many careful experiments for the purpose of ascertaining their true nature and composition, without, however, arriving at any definite conclusion. He stated that they consist of volatile, volatile, or perhaps some other organic acid easily converted into volatile acid, but the exact nature of the acid remains to be determined by future investigations.

The experiments and observations of Dr. Hendrichson leave, I think, pretty clearly shown that, after they really are composed of oxalate of lime. He gives a table of the different forms which he had found oxalate of lime allude; in that table he includes the dumb-bell under the head of contortions and anomalies, and says that they are probably with the opposition of irregular matter to both orthogonal tiles. By adding a concen-

trated solution of chloride of calcium to a boiling concentrated solution of oxalate and

the obtained a conspicuous white precipitate,

which under the microscope consisted...
Unfortunately, illegible handwriting prevents a natural text representation.
at right angles. This experiment, for
Wiederhling says, gave him the key to
the explanation of the nature of the
bodies found in the first two experi-
ments. The crystals usually with four
indentations are in fact nothing but
crossed prisms, whose ends, however,
are irregular, round, and sometimes
fractured. The angles are frequently so
much filled up that a round body is
produced, which it would be difficult
to give an account of: indeed for the other
crystals, here we have then, in the first
instance, crossed prisms, the angles and
edges of which become rounded off, and
the corners filled up, and that the more
the more. The formation of the crystals is
affected, and the more concentrated
the solutions are one of which they form
The bismuth, lead, from an oxalate
of lime precipitate will, on careful
examination, exhibit four points
corresponding to the places where, under
more favorable circumstances, there
would have been four other angles.
This, he adds, is a satisfactory explanation of the so-called tuberculate appearance of artificial precipitates of sulfate of lime. From regular crystals, it continues, they may become tuberculate by the addition of new matter. So, in the first deposit I found a crystal like the four pyramidal sides of which round masses were opposite. These masses get larger, and come from a core of cæsp on each side of the prism, which, when still larger, makes them much like dumb-bells, with which, indeed, they are identical. Dumb-bells crossed fashion are large tuberculate crystals.

These experiments of Peacock have several times repeated, and bear testimony to the accuracy with which he has described its appearance observed in each. In one experiment in which I added a solution of salis acid to some lime water (the ordinary aqua calci of the Pharmacopæia) the liquid became muddy in a short time, and on allowing this to stand over night a white deposit formed.
at the bottom of the gulf, this was examined under the microscope and was found to consist of innumerable small colorless prisms, with pyramidal extremities, and besides these prisms no other form of crystal could be observed. In some places these crystals could be observed collected into little groups, the groups generally consisting of a number of very small crystal prisms, or at the extremity of a larger one; in many places two crystals could be observed lying the one above the other, forming a distinct cross. Sometimes two crystals could be observed adhering to each other like their pyramidal ends. These crystals I laid aside in the fluid from which they formed, on examining them a few days afterwards no change could be observed, except that the groups were more numerous, and apparently the crystals forming these groups more firmly united together for the edges of many of them, were crossed by another crystal, could not
In attempting, I at first met with some difficulty that they could be separated from each other, in many cases this could not be accomplished.

On examining the same deposit a week afterwards, yet having in the interval been carefully preserved in a test tube in whose form extremity a cork was firmly placed, several distinct dumb-bell crystals were observed, some presenting a distinctly dumb-bell form, though not clear and sharply defined as they generally occur in the mine, others presenting that modification of the dumb-bell which resembles an oval, anelluted cell, the greater part of the crystals still contained their original form, though the groundwork had still more marked than at the former examination.

In one instance in which I obtained these crystals and the dumb-bells ever became numerous, and after they had stood for a period of ten days or a fortnight, it seemed that the dumb-bell ceased the former, for I could never
detect any increase in their amount after
that time. I took some of these crystals
and added some acid to them -
another portion I allowed to stand in
wine water, if they form here any
relation to the amount of either of their
constituents, but I could not detect any
change worthy of note.

Once, in the wine of a patient, labouring
under Hemiplegia, I have found these
prismatic crystals formed naturally,
and mingle with numerous quadrate
octahedra. This wine I examined
daily for a considerable time, but
could never detect any dumb-bells.

Taking every thing into account I think it that Mr. Yendicheris explanation
of the manner in which these crystals
are formed is the most satisfactory
which has yet been given, and though
there is still room for doubt, there is
every probability that further investiga-
tions will testify to the truth of the
deductions which he has drawn from
his carefully conducted experiments.
There seems the one good ground for concluding from their optical characters that the octahedra and dumb-bells differ in composition; for less reason is there for supposing that the dumb-bells consist of opalate of lime. On the other hand, I think, that it has been shown by Dr. Haeckel, both from their optical and chemical characters, that the octahedra and dumb-bells both consist of opalate of lime.

The dumb-bells present several modifications of form, all included under the one term; sometimes they resemble two kidney up with their concavities opposed; at other times they resemble three kidney up with their concavities all pointing towards a central point; some have distinctly the shape of an hour-glass. Others are oval in form and preceded by a central spot, thus presenting the appearance of a nucleated cell. They are always mixed with some or less of the octahedral crystals by which they are ultimately
declared: The dumb-bells seldom remaining abundant for any length of time. The most copious deposits of these crystals, which were in the mines of two Hospital patients, one labouring under Phthisis, the other being subject to those attacks of anginapectoris, with disease of the calves of the legs, and the blood vessels; in both cases they were from the first mingled with sanguis, as these increased in amount, the quantity of dumb-bells diminished, until the latter were entirely replaced by the former.

Character of wine containing sulphate of lime. There is nothing in the external characters of the wine containing this salt which would strike a casual observer as being at all remarkable; but a careful observer, once accustomed to the examination of spirits, can generally, something in its appearance which excites his suspicions, and leads him to look for
The last in question: of this something it is very difficult to give a description which would enable one who is not acquainted with it to form a correct idea of what it consists in. The wine is generally clear, sometimes darker and at others lighter than usual, and in marked cases of cyclophoria, presenting something of a dark greenish tinge, mingled with yellow. This Dr. Bird says he has another term I certainly have observed it in the few cases of this disease which have come under my notice. Dr. Proust, though manure at all times of the frequent occurrence of empetus of galate of time in the urine, was, nevertheless, struck by the appearance of the urine in cases of the galate disease (chiefly indicated by the occurrence of the salt in the form of calculi), for in a former note in the 2nd edition of his book he says: “One circumstance I have mentioned in the column of the urine in this form of disease, which, whether it
the characteristic or not I do not at present know. This can hardly be described as the indescribable by another, but may be said to consist in a peculiar yellow tinct, different from that usually present when the litthic acid prevails, which is usually more inclining to red. The colour of the wine is in these cases generally peculiar, it is not of the ordinary vinous character, but is sweeter and more agreeable; it has been described as resembling that of sweet-briar. The density of opaline wine varies somewhat—in cases in which the occurrence of the crystals is merely casual and temporary there is nothing noticeable in the density—in true cases of opaline desphacelie, in which the crystals occur persistently in considerable quantity, the density is generally higher than natural. This Mr. Birt says is due to an excess of water; he had divided cases of opaline
into two classes—A. Those in which
There is an excess of urea and extractive matter, and B. those inattentive to
excess of urea and extractive matter.

He gives the ratio of the densities in 85 cases. In 9 specimens the density ranged from 1009 to 1015.

24
23
26

1020
1025
1030

He states that, as a general rule, the
Triassic specimens contained twenty
per cent of this. He remarks also that he
frequently found a greater increase in the
tone of the muffle than the density would
have led him to expect, and that he
had carefully examined with a spec-
culum in which the density was above
1015, in which there were only distinct
indications of an excess of urea.

There is another character of agglutinate
worth of note, one which is rarely
missing, viz. a large quantity of spi-
helium of, or Bird's eye. It is the excep-
tion. The rule to find this form of
mine free from such an admixture.

In several cases I have been led
to look more carefully for the oxalate, on observing a more than usual quantity of epithelialium present, and have generally found it.

Other substances may exist in the wine along with the oxalate of lime; when these fall down they form a deposit. They always carry more or less of the oxalate along with them. Interphosphates and the most common, salt crystals of wine acid, and of trical Pithol. Whate also occasionally occur. Though, of course these last forms of crystal do not occur together. It is not common to find oxalates along with an abundance of the wine p' in the case in which I observed this. There were numerous casts of the renal tubes, a abundance of small orthohedral crystals, and in 2 of the tubes there were entangled several of these. In Pithol had noticed almostcells entangled in a tube cast.

I feared this as the result of this experience, that, in more than half of the cases, the oxalate of lime was found...
Enriched with any other labile deposit.
In many few cases crystals of oxalic acid were found from the first mixed with the urines. In a few cases of oxalate of lime, and in nearly all the successful cases this acid appeared in the course of the treatment, and ultimately replaced the oxalate of lime altogether at a period generally contemporaneous with the convalescence of that patient. Much more rarely, prussic and telluric acids were found fugitive in the urines. Occasionally replacing it in the course of the treatment. Beileides further that the trembling produced by both generally depended on the precipitation of the earthy phosphate, and in every few cases on the presence of allomy, and then it was usually transient and generally traceable to the presence of some secretion from an irritable cutaneous mucous membrane; he says that he has met with but few well-marked cases of complications of this palpable affection with granular...
desperation of the kidney. In the Monthly Medical Journal for August 1849, Dr. Surly has recorded a very interesting case in which disease of the kidney occurred, and that he regards as being the result of the increase of work which was thrown upon them in consequence of the mal-adaptation and deranged digestion leading the blood with impurities which they had to separate from the circulating fluids. Dr. Surly also had recorded a case in which these two accidents Causa in which osphalate of lime occurs in the urine may be divided into:
A. Those in which it is temporary.
B. Those in which it is persistent.
The former are never objects of special treatment, the latter generally appearing in the course of some disease which interferes more or less with the functions of assimilation, thin and excretion. There is no diseases to which this is peculiar; it occurs both in acute, chronic, and chronic diseases, and disappears before or along with the malady which may be said to give rise to it.
It is common in gout and chronicism, appearing along with, sometimes replacing to a great or less extent, the chronic acid in syphilitic disorders, and worthy of the name of true syphilitic acid. Though they may be looked upon as slight attacks of that malady, it is frequent in its occurrence. It is very common in the urine of patients labouring under melancholia; and in many other maladies, and I have no doubt that, if looked for, it might be found in persons enjoying perfectly good health. Walsh, in his work on diseases of the lung and heart, states that he has observed continued epalacia in cases of internal aneurism when the constitution begins to sympathize.

There is another common cause to which the temporary occurrence of these crystals is often due, and one which should always be borne in mind, viz. the taking with the stomach such substances as contain epalacic acid or one of its salts; it is particularly abundant in the
Taking some substance containing oxalic acid, the question as to the source of the crystals is one of no difficulty unless the crystals remained persistently after the acid had been properly regulated.

It was long ago pointed out by Mithler that oxalic acid taken into the stomach reappears in the urine; his experiments were performed on dogs, but they have been repeated with accuracy corroborated by Passhein. These experiments were performed on the human subject. Their experiments prove that some of the oxalic acid taken into the stomach reappears in the urine, but that the greater part of it disappears, and is eliminated in some other way. They also show that the quantity of oxalic acid which reappears in the urine is much the same whether the acid be taken uncombined or in the form of a soluble oxalate, but that when the oxalate of lime is taken the amount which can be found in the urine is much less. The greater part of the
salt passing off by the bowels, its insolubility preventing it from being taken into the system. Such is the source of the salt in these cases. In those cases, however, in which no such source can be traced, the explanation of the occurrence of the salt is by no means so easy. The acid has been said by some to have been formed in the kidney, others have gone further back. Regarded the digestive organs as the seat of its formation, it is probable that both are correct, that in some cases it is formed in the kidney, in others in the digestive organs.

It is well known that sugar and allied substances, which enter largely into the composition of ordinary articles of food, are easily converted by the gastric juice into oxalic acid. It has also been demonstrated by Leibig and Möllendorf that wine acid is capable of being converted into oxalic acid by similar means. To show the readiness with which, in certain circumstances, this change may take place, we find
Mentions a circumstance which has been observed with regard to the guano which has been brought to this country from South America, viz. that when eaten it contains a considerable quantity of carbonate of ammonia, which, after a certain length of time, and often during the voyage to this country, nearly wholly disappears, and is replaced by carbonate of ammonia. The same author throws out the suggestion that the elements of urea may undergo a rearrangement in the act of elimination by the kidney and become converted into carbonated ammonia, and oxygen. Hence:

\[
\begin{align*}
\text{1 atom of urea} &= \text{C} + \text{HNCO} + 2 + 2 + 4 + 2 \\
\text{2 atoms of water} &= 2 + 2 + 6 + 4 \\
\text{2} + \text{2} + \text{6} + 4 &= \text{2} + \text{2} + \text{6} + 2
\end{align*}
\]

The guanos have fact that under a depressing influence exercised on the nervous system at large, as in typhus fever, or in a portion of it connected with the functions of the kidney, as in injuries of the skin, the urea becomes converted by a rearrangement of its elements into carbonate of ammonia.
and supposes that under a modification of this influence the urea may become converted into oxalic acid, ammonia, and oxygen; it may be the case that in some instances the oxalic acid is formed by a rearrangement of the elements of urea, but I don't think the mode of its formation is at all similar to that by which carbonate of ammonia is formed in cases of injury of the urine, as much as it has been shown that the carbonate is formed in the bladder and that the urine is acid when sterile, the bladder first becoming affected and forming for the unhealthy means whereby the quality of the urine is changed. Ludwig supposes that oxalic acid is formed from uric acid, and not urea.

\[
\begin{align*}
\text{atomi uric acid} &= 10 + 4 + 8 + 6 \\
\text{atomi water} &= 4 + 4 \\
\text{atomi oxygen} &= 3
\end{align*}
\]

This is on the whole an explanation of the formation more in accordance with
admitted facts have that given by Dr. Bird; it is a matter of no great moment, however, which is the correct explanation. There can be little doubt that they are sometimes formed in the kidney. Dr. Dale says that "these crystals are certainly formed in the kidney; for I have seen them in the tubes after death on several occasions, and once I met with them in the fibrinous casts of the spermiferous tubules which had collected in the urine." This however only proves that the salt was secreted by the kidney, and it may have been the result of malabsorption in those cases. Dr. A. B. Smith relates a case in which considerable quantities of the oxalate occurred in the albuminous urine of a patient who succumbed to disease of the kidney. The body was carefully examined after death, and in one part of the body were any crystals detected. The bladder was not examined. The analysis of the blood which was conducted with great care yielded no evidence
The presence of oxalic acid. It seems pretty clear then that oxalic acid may be formed in the kidney, meeting with lime, united with it to form the oxalate of lime, and the substance from which it is formed is probably uric acid.

There can be no doubt that this is not the source of oxalic acid, but that in many cases, probably the majority, and certainly in all cases of true oxalic dyspepsia, the cause on which the formation of the acid depends is to be looked for in the digestive organs, that its generation is due to some functional derangement of these organs in all probability the partial assimilation of saccharine matter. Many circumstances point to this as the cause of its formation. The evident derangement of the organs in question in cases of oxalid dyspepsia. The fact that in many cases of this disease the amount of oxalic acid formed may be controlled by a properly regulated
diet; some articles of food which themselves contain no acetic acid causing its formation and excretion in increased quantity, while others have a markedly beneficial effect, diminishing the amount of the acid, and alleviating distressing symptoms in a corresponding degree.

When we regard the symptoms of which present themselves in cases of acetic diabetes, please in mind the with which sugaralkali substances which form such a large portion of our diet are converted into acetic acid, I think, we can have little or no hesitation in saying that in these cases the primary disturbance is situate in the digestive organs. Acknowledging, then, that the acid is formed in the digestive organs, and knowing as well, that it is excreted by the kidneys, it must find its way into the blood, where its presence should be capable of detection. The only instance, as far as I am aware, in which it has been found in the
blood is one mentioned by J. Bird in which Mr. Larrod obtained octahedral crystals of the oxalate from the serum of blood in which he was endeavouring to detect uric acid. The crystals have several times been found on metal surfaces, and in these instances were in all probability derived from the blood. The oxalic acid of course unites with the lime in the blood to form oxalate of lime, and a difficulty presented itself here to us: How can we dissolve a salt in solution in the blood? The only probable explanation of this is that given by P. Schmidt of Dorpat. He has allowed (I quote from J. Bird) that there exists in the animal economy a tendency to the formation of a soluble triple compound of oxalic acid, lime, and albumen, which by its decomposition allows oxalate of lime to crystallize. A compound of this sort exists in yeast cells, for when recent, minute microscopic examination fails to detect any crystals, but when kept long
enough to undergo decomposition, octa-
dehedral crystals of oxalate were found
by F. Schmidt to be abundantly evolved.
Having now discussed the pathology of
the disease I shall next proceed to give
some account of the symptoms which
are manifested in cases of cyclic depalpina-
ging. I now proceed with the statement that
in all cases it is the persistent presence
of crystals of oxalate of lime in the urine
which forms the distinguishing character
of the disease, enabling one to state in
the most unhesitating manner the
nature of the malady under which
the patient labours.
Most of the patients labouring under
this form of disease belong to the upper
classes, the majority are males, and
in the prime of life, they are usually
found of the good things of this life,
and are often specially addicted to
the use of sweet things. I am indebted
cases the symptoms are usually referable
to derangement of the digestive organs.
Diet in well marked cases symptoms
Referring to the nervous system occupying a prominent place, and the appearance of the patient forms evidence of the extreme melancholy and depression of spirits under which he labors. As markedly is this a symptom of this disease, that the disease may in some cases be diagnosed from the appearance of the patient alone. The aspect of the countenance is generally dingy. The skin is dry. The tongue fissured. The bowels irregular. The patient is troubled with flatulence, and complains of a sense of weight andlessness in the region of the stomach. Palpitation of the heart is common, is increased on making any effort. It often leads the patient to think that he labors under some disease of that organ. The attitude which the patient assumes is worth of notice; he does not sit erect in his seat, but assumes some attitude in which little or no muscular exertion is required, such as leaning forward.
and resting his elbows on his knees or leaning over the back of his chair, thus showing evidence of the listlessness and lethargy under which he labors. The patients generally complain of inability to support themselves, and in capability of bearing any amount of fatigue, and say that they are quite unfit for their usual occupation; they are nervous and irritable, and tremble on making the slightest effort. Many complain of loss, or rather impairment, of memory. Circumstances don't seem to take the same hold of them that they used to do; sometimes they have the dread that their mind is going to give way. In most cases there is considerable emaciation, and in some an anemic type. It may be heard on auscultation. Cases occur, however, in which the emaciation is by no means great though the other symptoms are well marked. A very usual cause of complaint is
pain in the back and loins, dull and aching in character. Sometimes exciting great distress. Sometimes the bladder is irritable; and, in a case related by Dr. Begbie in the paper to which I have already referred, the bladder is said frequently to have lost its power of retention.

Haemorrhage from the bowels may occur, as is related of another of Dr. Begbie's cases. In men the virile power may be greatly diminished or completely lost, and along with this, threatening of paraplegia may show themselves; Dr. Begbie says that he has in several instances seen the loss of virile power accompanied by flaccidness and loss of power in the lower limbs, such as to lead to the suspicion of permanent paraplegia. These paraplegic symptoms probably depend on a poisoned condition of the blood, similar to the same symptoms as may occasionally appear in Petit Hématie.
Another symptom of which many of the subjects of this malady complain often, indeed, that which they regard as the source of all their sufferings, and which in all cases goes a great way to augment their depressed state of mind, is the frequent occurrence of nocturnal emissions. This, besides augmenting the mental depression, also adds to the bodily weakness, and is always a source of anxiety and weariness to the patient. Many of these patients like to have a talk about themselves with a medical man, though they seldom believe him when he tells them that their malady is by no means beyond the reach of medicine. In extreme cases the state of self-punishment and despair may under which the patients labour is such as to deter them with arraignment of the mental faculties. They avoid all society, shun even their own friends, and live in silence and alone over
their sad and melancholy fate, regarding themselves as the victims of some incurable malady, having especially a morbid dread of Pott’s disease and of heart disease, and scarcely crediting the physician who tells them that neither of these exists.

Cutaneous eruptions are apt to make their appearance during the course of the malady; and for the most frequent and most troublesome is an eruption of furunculi or boils, which cause great uneasiness and irritation, and are often very obdurate and difficult to get rid of, but ultimately disappear under treatment directed to the malady of which they are merely a symptom. There are other two conditions in which boils are apt to appear, and these, like cases of pyogenic diptheria, are chiefly indicated by the condition of the urine, the one is that in which the urine is found to contain sugar; Diabetes; the other is that in which the urine
is found the superacid, containing crystals of uric acid, so that in all cases in which an invertebrate eruption of boils occurs it is proper to examine the urine, as there is found the key to the treatment which is most likely to benefit the patient.

urine containing an excess of acid, requiring pointing out a plan of treatment quite different from that which is proper in cases in which alkaline urates are found. The former requiring alkaline remedies, the latter being benefited by acids.

The characters of urate urine have already been given. Such being the distressing character of the symptoms in this malady, it is very desirable that the condition which gives rise to them should be combated as speedily and as efficaciously as possible. Otherwise more serious consequences may arise, for if the disease is allowed to remain unchecked it will in all probability ultimately lead to the formation of a calculus in the
The kidney or bladder, and subject the patient to all the suffering and danger consequent on such an occurrence; or it may give rise to still more serious consequences in malignant organic diseas of the kidneys. Dr. Reid relates a case in which there was every reason to believe that a renal calculus existed, and in a case related by Dr. Bogle, to which reference has already been made, there existed the symptoms of urical dyspepsia for a long time, but the nature of the malady was left, at that time, properly understood.

The patient was subjected to a variety of treatment without any marked benefit, until, exposures of urical dyspepsia, as described by Dr. Reid, having been excited, the urine was examined, and oxalate found, and the patient was put on suitable regimen, ordered to take citric acid. The patient under the means adopted seemed to be restored to perfect health, but some time afterwards, evidence that the kidney was diseased manifested itself. Under this the patient died.
A post mortem examination showed that both kidneys were enlarged, pale, and waxy; the right, at its inferior edge, was the seat of a malignant growth; of the size of a large walnut. The stomach and bowels were remarkable free from disease. Such being some of the direstous consequences of following the continuance of this affection, I shall proceed to say something regarding its treatment. One can generally judge, regarding the curability of a disease by the similarity or variety of treatment adopted by different practitioners; when we find a great many different remedies recommended by different men for the same affection, there is reason to suppose that none of them can be regarded as being very efficacious; when on the other hand it is found that a plan of treatment recommended by one, has been adopted and acted upon to by all other practitioners, it may be inferred that the disease readily yields to the mode of treatment adopted.
Such is remarkably the case with regard to Calvin dyspepsia; and there are few cases which a physician has more satisfaction in treating than a marked case of this disease.

What are the means adopted?

The diet and general regimen must be regulated; patients must avoid all sweet things, spiritsuous liquors, and heavy colds, and then all calculi formed which tend to produce flatulence. They should rise early, and let the first thing be to sponge the body with cold water, and it will be found that they should take a bath before going to bed; let them live in the country, take outdoor exercise, and have cheerful company. By these means the disease may be palliated and kept in check to some extent, and by giving, in addition, a crystalline acid the disease may be completely removed. The acid which is generally used is the nitric nitric acid, and the results which have followed
its use, as related by those who have employed it are such as to warrant us in regarding it as almost an infallible remedy; at the same time there is every probability that nitric acid would answer the same purpose.

Five to ten drachms of the acid may be given twice daily, largely diluted with water. Thus

\[ \text{Acidi Nitrici Minimæzg} \]

\[ \text{Aqua Fontis Zfg} \]

Sig. Smalt coeruleum minimum ex aquæ.

In the meantime the urine should be repeatedly examined while he is taking the acid; after he has taken it for some time the urate of lime begins to diminish, and crystals of urine acid make their appearance.

It may be necessary during the course of the treatment to discontinue the acid, and give some other tonic remedies, such as some better vegetable infusion; and the condition of the urine is in general a good indication as to the propriety...
If continuing or omitting the acid, if it contain much white acid, it will be advisable to stop the administration of acid remedies for a time; the same course may also be indicated by the occurrence of other symptoms, such as jaundice, after the acid has been used for some time. Such is the general plan of treatment that adopted in cases of acrid dyspepsia; circumstances, however, may arise, or peculiar symptoms may show themselves, and indicate some change in the treatment to be adopted. The bowels must be regulated if necessary — if anaemia is present, preparations of iron will be indicated. When great nervous irritability exists, I would urge that sulphate of zinc is of service. The same author also reports favorably of the use of calomel in some cases under its use. The calomel diminishes and limits acid, and mucus appears in the urine. The treatment must in all cases be steadily persevered in, and it will be the duty
If the physician to encourage the patient to continue the course of treatment which has been recommended, and at once to assure him that he will, in all probability, be ultimately restored to perfect health, though it may take months, or even years, before the disease completely yields. In most cases the patient feels himself so much better after having gone on with the treatment for some weeks, that he begins himself to have some hopes of his ultimate recovery, and if he continues steadily in the path pointed out, a marked improvement will soon take place. He acquires a more cheerful manner and aspect— is no longer troubled with his digestive symptoms—but, if they have increased, begin to be less troublesome—terminal emissions, which perhaps previously occurred 20 or 30 times a week, now occur much more seldom— should threatenings of paralysis have receded, they too, if not diminished, will, at least, not have become more
evident, and this along with all the other symptoms ultimately disappear if the treatment is steadily persevered in. The urine, if examined while this amelioration of the symptoms is taking place, will probably be found to have a specific gravity a few degrees lower than when treatment commenced, and to contain some crystals of uric acid, and to show a diminution in the amount of oxalates, varying according to the time that the treatment has continued, and the amelioration of the general symptoms which has taken place; and after the patient has been restored to perfect health the oxalates have almost, or altogether disappeared.