AN INaugural Dissertation
ON
ARSENSIOUS ACID

Submitted to the
President, Board of Trustees, and Medical Faculty
of the
university of nashville,
for the degree of
Doctor of Medicine.

By
R. P. Bateman
of
Tennessee

1852

W. T. Berry & Co.,
booksellers and stationers,
nashville, Tenn.
To Dr. Hatchett M. D.
As a slight testimony of my regard for him as a gentleman and physician. This Thesis is respectfully inscribed by the Author.
As custom and qualifications make it necessary for the candidate for the degree of Doctor of Medicine, to write either a dissertation or some medical subject, I have chosen one that is all important to the Physicians, that of Osmium Acid. One of the most common and menacing substances known to the suicidal, and a powerful remedial agent to the skillful practitioner. Therefore it is quite necessary for the Physician to understand its many and varied properties on the animal economy. And all the tests for detecting its existence in a medical leg of investigation. The Earliest Chemists were embarrassed in determining the nature of the poisonous substance known in commerce by the name of arsenic. Subsequent experiments have gone to show...
That it is metallic arsenic. It originated in the first ages. But professing the character of an acid it unites with all acids to form salts and is properly called arsionic acid.

It is sometimes found in nature in distinct crystals in volcanoes and among the ores of arsenic in maps which are quite numerous such as Cobalt, nickel, bismuth iron &c.

Arsenic acid as found in the shops for medicinal use is in the form of a fine white powder. In this state it is often adulterated with powdered salt &c. and other substances, which is easily detected by heating the powder sufficiently to evaporate the arsenic, and the impurities will be left behind.

Arsenious acid dissolves readily in hot
but slightly so in cold rain and has several amy taste. And this accounts for the possibility of confounding it with Calomel, Magnesia, which is of the same. As Mitchell in his Therapeutic Practice mentions a fatal case of this kind.

The medicinal qualities of Osmium Acid internally is alterative and debilitative and externally violent and irritant. It was formerly much used prior to the introduction of Sulp of Sapphires in diseases of a periodic character.

The different preparations of Osmium Acids are quite numerous. But the most useful and permanent form is in solution. This is usually called "Dilute Solution." It consists of Osmium Acid and Carbonate of Potash each four gr. added to one part
of hair and heated by a Spirit Lamp. The dose of this preparation is from ten to thirty drachms three times a day. Thirty years ago the maximine alex was for, and three times per day. But as Dr. Mitchell says: 'As diseases of all kinds manifestly change this grade and phase. So with the same for which this medicine is employed. And I absolutely found it necessary in the James of Pennsylvania in 1813 to use fifteen and twenty drach three times a day, and often. Mersius acid in some form has long been expelled as a remedy in Cinarous affections such as Flinshas past. And it was remedy for cancer. But I find more advantage of the good effects of these remedies in this disease. Sam. H. Chadron' part of our Potterser, Dr. E. R. Potterser of Surry at this day tell us that there is no remedy for genuine cancer.
A case where this remedy was used
came under my immediate observation.
My father was afflicted with cancer
of the face, and after employing
the most skillful physicians to no benefit. A celebrated cancer
doctor (as he was called) was called
in, and an arnica oil paste was
used by him, which augmented the
inflammation and irritated there in, and
I saw no thought buried him to his grave.
And again deaths have been reported from the absorption
of this poison which used formerly.
It has been whether
the different arsenic, saltpeter, when
administered internally, act in the same
way. Some authors thinking that the
solution must only be regulated by
the convenience of administration. But
the late Dr. Price thought different
for the arsenious acid, and the solution
of arsenite of Potash was the result of
his experience that they act in different ways and cannot be substituted for each other.

Some authors have entirely proscribed the use of Aconite, and with their introduction in the Pharmacopoeia a great evil. As legalizing the medicinal employment for self destruction and murder. This certainly would not be in much the facilities for obtaining it; considering its extensive use in the arts. Besides if in excluded all remedies from our list that had poisonous qualities we would gain many of our most benificent and energetic remedies in combating disease. And as the Latin phrase says of poisonous remedies uti vini eti virtus. Which certainly is true. And I am sure there are few physicians that would be willing to give up Aconite Sublimate, Strichnia Digitalis. sc.
The diseases to which arsenic is applicable are numerous. In serious and anomalous ulcers Sepia, phos.-f. &c. Authoritative authors think it particularly applicable. Dr. Periera says, he has seen it used in many cases of Sepia without a single failure. To cure, and in obstruents intermittents, it is highly efficacious as a remedy; and as I have said before, in most all periodical diseases.

The mode of applying of the arsenical preparations is diversified amongst authors. Containing, go to the tonic effect. But this is not well accounted for. With regard to an alterative, and especially does this appear in skin diseases. And its antiperiodical and febrifuge action, I believe, is not denied.

By far the most important point in relation to Arsenious Acid is its
famous qualities, which I shall now proceed to speak of. Oxyminous
acid in an overdose when taken internally or applied externally
acts energetically as an irritant person, and generally destroys life in
a short time.

The effects of the poison on the animal economy are numerous and
different, which I don't think necessary to enumerate here. It may be
well enough to remark that the different
effects vary considerably according
to the different states of the stomach
and habits of the patient. In
some it requires a very small
quantity to produce fatal, and in oth-
er cases a very large quantity being
taken with impunity.

It seems two grand views have been known
to poison fatal in the adult; and
again they are known to have been taken and yet the patient—
and it is said that those having a Paralytic predisposition its fatality is greater, if farther developed by that predisposition. Although life may be prolonged for many months, yet death will inevitably take place in general. Hence, although it is unlikely that this disease may be set up by an accidental poisoning in those having no apparent predisposition to the diseases, the remedies and antidotes for poisoning by arsenious acid are numerous. I shall first give those that are considered as universal.

First, Emesis either by Emetics or the stomach pumice. Milk, Soap, ale, and Charcoal stand at the head of these. Magnesia and Subacid have been used in many cases with success. Some regarding them as antidotes and others regarding them merely as emetics. Bengay Ointment for the Anterior abdominal
of magmus and says it forms an
insoluble arnity of magnesium by
chemical union with acid. Salm
successful cases of its efficacy has
been reported. Tobacco on the oth-
hand is said to produce a com-
ound by uniting with the arnomy
acid and thereby diluting both of
the original qualities of the drug.
ond Dr. Chistison has demonstated
some of this facts, for instance
the mixture of Vandamme and
Corvina Sublimed: both seperately
will poison while the compound
apparently will do no harm.
The proper antidote for chemical
poisoning is the hydrated Oxide of iron
it is prepared by adding four ounces
of iron filings to eight ounces of Intro-
Muriatic Acid and heating to form
a solution and then adding ex-
travenounces of water, then by degrees
three ounces of Aqua Ammonia to
From Alas, the essence of iron, be made to be filtered, and the tep to be collected and dried for use. It may be given at whatever time, by the mouth, and injection. It is to be prepared freshly for use as it deteriorates by keeping.

The subcarbonate of iron (green rust) is said to have antidotal powers, but inferior to the former article.

The curaric bone from提现 abal poisoning is generally long and tedious. Treatment of the patient too long enough for inflammatory symptoms to be set up. It consists in the application of such as the

reduction, leeches, and graduated enemata. Antispasmodics and narcotics will often

relieve pain and nervous irritation. The diet should consist of mucilaginous

arils and bland articles generally such as milk, tapioca, rice, &c.

The mode of using and detecting

aromatic acid. An aromatic and some of
Thus complicated. But there are most simple and easily obtained and performed. I think it necessary to mention, these consist in the reduction and reductive processes. The first (liquid) in the ammoniated nitrates of silver and the ammoniated sulphates of copper. The former giving a bright yellow to the latter an apple green color to a solution of the acid. And a peculiar color of garlic is ascribable to it if a portion of the acid is thrown on fine charcoal. But this is not satisfactory enough in a medical legal investigation will combine with some reducing process. And the most simple form of these I shall now proceed to give. Of these Rauwolfia and those performed with charcoal or (black fly). The suspected substance after being reduced to the dry state is filled up with the charcoal and placed in a glass tube with one
End closed and the other slightly so by
a plug of cotton so as to arrest the vapor
which is condensed on the inside of the tube
in the metallic state. Then by the application
of heat to the substance of arsenious it
may be collected and distilled, and the
liquid test applied. And if their
characteristic colours are given the test
is confirmed.

That of Rainachio is satisfactory and sim-
ple especially if constructed by the liq-
uid tests. This is done by cutting copper
foil into pieces and inch in length and
eight of an inch in width, and putting
them in the solution, then heating the mixture
and adding a small quantity of nitric
acid to decompose it. And the thin test
like coating is deposited on the copper
which may be distilled separated
by distilling in nitric acid. And
finally the liquid test is applied.

Age 52 years  
R.B. B. Altman