On the Botanical and Chemical Histories, and Physiological and Therapeutical Actions of Colchicum autumnale.

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The first part of the present thesis, consists of a sketch of the History and Uses of Colchicum, from the earliest to the present time.

In the second section, which is devoted to the Botanical History of the drug, much attention has been paid to the growth of the bulb, an important subject as it is necessarily connected with the much disputed point, as to when the bulb ought to be gathered for preservation and subsequent use. This part of the essay is illustrated by several preparations and specimens of the plant, procured at regular intervals from the Royal Botanic Garden, and by illustrative drawings, executed by Mr. Winter.

The third part is occupied with its pharmacology, and comprises a consideration of the time of year at which the bulb ought to be collected, the mode of preserving it, and the characters by which we estimate its goodness.

The fourth part contains some account of what is known of its active principle: Colchicum.
The official preparations and their doses occupy the fifth part.

In the sixth section, the physiological action of Colchicum is treated of, both as a drug and as a poison, especially its effects on the Renal Secretion and on the Heart.

The seventh section, in which the therapeutical action of Colchicum is considered, embraces its use as a Diuretic, Diaphoretic and Sedative, and especially its employment in Gout and Rheumatism.

The eighth and ninth sections contain the use of Colchicum in other diseases, comprising those in which I have been able to find that it has already been used, and suggesting on theoretical grounds, its application to certain cases of Bright's Disease.

In submitting this thesis to the Medical Faculty, I have to apologize for its great length, at the same time I may state that had time permitted, and had I possessed the means of studying more minutely, and personally observing the therapeutical action of this drug, it must have extended much further.

I should take this opportunity of returning my best thanks to Professors Christian and Wilgton, to the former, for his unwavering kindness to me whilst engaged in my chemical and pharmaceutical investigations, and to the latter, for the privilege he afforded me, of procuring plants from the Botanic Garden.
On

Colchicum autumnale.
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General History of Colchicum.

It is probable that the drug familiar to us by the name of Colchicum, was known to Dioscorides and other ancient authors, both under the names of "κολχίκον" and "ζμοδακτυλος." The former name was derived from the city of Colchis in Greece, a place not less celebrated for the numerous medicinal and poisonous agents which abounded there, than for the famed miracles wrought with them, by the Sorceress Medea. The latter term, from a fancied resemblance which the root bore, was derived from two Greek words signifying "Fingers of Mercury.

Alexander Trallianus, the well-known physician of Asia Minor, in the fourth century, is the earliest authority who treats of it, under the name of Hermodactyl, but there is strong reason for believing that it was in common use prior to his time, for the same diseases in which he employed it, namely, Arthritis and Rheumatism.

Paulus Egriota, who flourished in the end of the sixth, or beginning of the seventh century, mentions Hermodactyl.

He says, in his Materia Medica "that it is possessed of purgative properties, and that the decoction of it is
used in Arthritic diseases and Rheumatism," and
in his Practice of Medicine, he says, "some, in the parox-
ysm of all Arthritic diseases, have recourse to purging
with Thermochalyx; but it is to be remarked that
Thermochalyx is bad for the stomach, producing nausea
and Amaesia, and ought therefore to be used only in
the case of those who are pressed by urgent business;
for it removes Rheumatism speedily, after two days
at most, so that they are enabled to resume their ac-
customed employment." I knew a person who did
not give the substance of Thermochalyx, nor any of the
compound medicines containing it, but, boiling the
plant itself with some of the common remedies, such
as Arnie or Parsley, he gave the decoction to drink, and
it was wonderful how those who got it, having evac-
uations of the bowels, were freed from the Rheumatism;
it is necessary, however, because the medicine is bad
for the stomach, to correct its action by stomachics and
tonic.

The Caldineum of Dioscorides is not mentioned at all
by Paullus, who takes notice only of Thermochalyx. This,
as is remarked by the translator of Paullus, is a per-
fumitory part of the two plants being identical, an opini-
on obviously entertained by Prosper Alpinus, who writing
in the sixteenth century, in describing this plant, says,
"Hermodactylus qui est radix Coleiicii Crecorum"

This opinion of the identity of the two plants is also entertained by Petrius, Tournefort, and others.

Prosper Alpinus differs from Paullus in his account of its effect upon the stomach, for he states that "the Egyptian women ate largely of the roots, namely, to the extent of twenty in a day, for the purpose of fattening themselves," and he adds, "that this quantity, more than enough in our own experience to destroy twenty lives, produced no effect either on the stomach or intestines."

Although, however, this may seem paradox to lead to the supposition, that other plants may have been confounded under the same name, I am inclined to think that the plant eaten in Egypt was the same as that used in medicine, and that variations of soil, climate, and cultivation may have altered or modified its properties, and that the roasting to which it was subjected, previous to being eaten, might tend in no small degree, to alter the action of, or to obviate entirely its active principle.

In support of this view of the statement of Prosper Alpinus, Carthensus, professor of medicine at Frankfort in the last century, states that the Coleiicium growing in his neighbourhood, possessed neither purgative nor diuretic properties, and he ascribes no motions qualities to it whatever.
Geoffroy, however, the distinguished French Professor of
the beginning of last century, states that the Colchicum
both of ancient and modern writers is poisonous, and he
quotes Dioscorides, as to the effects which succeed to the
use of it, namely, that those who have eaten of the root,
are seized with itching over the whole body, and with
burning at the stomach; he also mentions bloody stools
as one of the sequelae of its use.

It thus appears that the Colchicum of Dioscorides
was possessed of drastic properties, that a plant under
the name of Hermodactylus is mentioned by Paulus,
as possessed of purgative qualities, and that Prosper
Alpinus identifies Colchicum with Hermodactylus, the
root of which he says was eaten in Egypt.

There seems therefore good reason for supposing
that one and the same drug is meant by all these
ancient authors.

From the time of Geoffroy (who himself does not
seem to have had much experience of the use of Colchicum)
to that of Baron Stöhr of Vienna, by whom many ancient
medicines were reintroduced and described, Colchicum seems
to have been entirely laid aside, and completely forgotten.

Stöhr, however, mentions its great use in various dis-
cases, and gives numerous instances of death from over-dose,
one, being that of a healthy countryman to whom a single
post was given, and another, that of a girl to whom the flowers were administered during the progress of Intermittent fever, and whose death was preceded by three days of intense suffering.

Quincy states that so great was the efficacy of Colchicum in Arthritic diseases, that it was called by some, "Amira Articularum".

In later times there have been many writers on this plant, and the researches and experiments of Sir Erneard Home, Dr. Jones, and Messrs. Hadley & Wunt, have tended much to enlarge our knowledge on the subject.

Colchicum has served, and still serves as the basis of many quack medicines both Foreign and British, the most remarkable of which is the "Eau medicinale d'Husson," which was in great repute for a time. The inventor was a military officer in the French service, whose unquenchable love of Botany led him to investigate the properties of various plants, and in prosecution of this enterprising policy, it is supposed that he discovered in Colchicum, an active property which he afterwards introduced into medicine as the "Eau medicinale."

Many other quack medicines have this plant as an active ingredient, and in their respective times have held considerable celebrity. Among these may be mentioned—Hunt's Powder, Julius Arthritisus Tonic, Vienna decocotion, Wilson's Gent Sticture, and Reynolds Specific, the
inventor of which, it is said, killed himself by taking an overdose.

During the seventeenth, and at the commencement of the eighteenth centuries, Colchicum was held in great repute as a prophylactic agent.

During an epidemic of Dysentery in the year 1668, Hendelius states that Colchicum acted as a charm, preserving all who wore it suspended from their necks from the ravages of the disease, nor did it preserve from Dysentery only, but from epidemics of every description, such as the Plague, Malignant Fevers, Smallpox, Poxes, and the like, and so confident was he of its powers, that he wore the root of Colchicum suspended from his neck, in the form of an amulet, from the year 1668 to that of 1718. The occasion on which he discovered its prophylactic power, he says, was a Dysentery which raged with great severity in the year 1668, when at least four hundred persons became his patients, afflicted with Petechiae, Delirium, &c, and who required his attendance for upwards of two months, at which period a dissertation on a plague which raged thirty years before fell into his hands, and divulged all the secret remedies made use of at the time. Cather, the author of this treatise on the Plague, asserts, that a general of the Hungarians, in the time of war, maintained an entire army, through
the savages of the Plague, by means of the amulet alone, and that all the inhabitants of that district were preserv ed by the same means, while in the neighboring coun-tries, about families of all ranks in society were cut off by its frightful pavorages. Thechus, therefore and his friends attached to a collar this amulet of the cost of Colchicum, and not one of them was attacked by the prevailing Dysentery.

The public mind placed great reliance on this agent, so much so, that the Governor of Hamburg, (the plague having broken out there) ordered two physicians from the University of Jena, who were skilled in its application, to be sent to him, and it is said that the city was thereby saved under their successful practice.

Holzgo, Professor of Jena, also gives an account of the amulet, but mentions a case having proved fatal, even under its use.

Rivinus, writing on the Plague of 1580, is also sceptical, giving it as his opinion, that the only use of it was to fortify the minds of the people, and therefore by con-""
Botanical History of Colchicum.

Colchicum belongs to the Endogenous Natural Order Melanthaceae of Lindley, and Colchicaceae of De Candolle, of which order the following are the principal distinguishing characters.

They are in general bulbous or fibrous-rooted plants; in some the flowers are half-subterranean, like the Crocus, in others they form spikes, or simple branching herbaceous stems, as in the genus Veratrum. The Calyx and Corolla form together a perianth, generally consisting of six pieces, which are usually petaloid.

The ovary is 3-celled, with many seeds.

They belong to Peronos Clade and Order, Asparagales Legg., the Melanthaceae approach in character most nearly to the Delicaeae, but are distinguished from that order, by their imperishable fruit, and anthers turned outwards.

These plants are common in Europe, and at the Cape of Good Hope, Asia, and North America.

"This order seems to be confined within no geographical limits; it is however far more abundant in northern countries, than elsewhere."

In their properties, these plants are almost always poisonous in all their parts, and act generally as Narcotic acids.
The principal genera of this order which furnish medicinal plants, and whose active properties have been most fully investigated, are Colchicum, Veratum, and Atropa, to the former of which however, our attention in the following pages is to be limited.

There are three well-known and distinctly defined species of Colchicum, namely, Colchicum autumnale, Colchicum montanum, and Colchicum variegatum. Colchicum Autumnale has been supposed by some to be a distinct species, but more generally it is considered to be identical with Colchicum variegatum. To this species the production of Vermisactyl has been referred.

Kunth believes that the Colchicum montanum of Allioni, and the Colchicum autumnale x of Bertolli, are identical. He thus describes this species: the tube of the perigon is five or six times longer than the limb; the calyx is ovate; the limb lanceolate; stamens equal, inserted; bulb unifloral; leaves succeeding the flowers, linear, lanceolate, obtuse, and at-teminated towards their base.

Colchicum variegatum he regards as a distinct species, and thus describes it: leaves oblong-lanceolate, channelled, and undulated at their margins; the lanceolate segments of the corolla acute.

Colchicum autumnale is the only species official in this country. In vernacular language it is termed Autumn
Croce or Meadow Saffron. It is indigenous to Britain, occurring frequently in Suffolk, Dorsetshire and Wiltshire, in England; but in Scotland, although found in many situations, must be regarded rather as an introduced than as a native plant, the only distinct station assigned to it being at Alton.

The leaves of Colchicum are broad, lanceolate, and erect.

The flowers arise from the bulb by a long tube, which is surrounded at the base by a membranous sheath.

The stamens are inserted on the oblong-ovate segments of the pale purplish perianth.

The ovary is at the base of the bulb, and its long filiform style runs up the whole length of the tube.

In its mode of inflorescence, Colchicum autumnale somewhat resembles Theseisago pastor, its common Colb's-foot, inasmuch as the flowers and leaves occur at different seasons, the only difference being that in the Colb's-foot the leaves immediately succeed the flowers, whilst in the Colchicum, several months elapse between the flowering and leaf-bearing seasons.

The manner of the propagation of Colchicum autumnale is interesting not merely in a botanical point of view, but also as regards the medicinal qualities of the cone or bulb, at different periods of its growth.

Colchicum autumnale is well known to be capable of being
propagated in two different ways, namely by seeds and bulbs. Dr. Christian however has mentioned a third; besides the growth of a single mature bulb, by the throwing off of a number of small immature bulbs from the parent plant.

The manner in which perfect plants grow from seeds and immature bulbs, has not been determined. It has not indeed been accurately ascertained if these immature bulbs ever produced perfect plants at all, but it seems probable that their premature separation from the parent, renders them incapable of coming to perfection, and they are perhaps to be regarded rather as a kind of abortion, than as a legitimate mode of propagation.

I have endeavored to trace the growth of the plant from seeds, but in vain. The Colchicum in Scotland rarely produces fruit, and never ripens its seeds. I have never succeeded in attempts to grow any of the seeds procured from the druggist shops.

The propagation of the plant, by its more ordinary method of forming a single new bulb, has been better ascertained, and in order to enable the growth of a single bulb to be traced from its origin to its termination, I shall in my description refer to the accompanying diagram, where the individual bulbs are lettered, and can be easily followed through all the stages of their progress.

We shall suppose the time at which the observation i
commenced to be June, and that we have in view a nearly
full-sized bulb, which we shall call A. At this time it
is as large as an apricot, firm, amorphous and extremely
bitter, and having attached to it the shrivelled remains of
the old bulb, and the leaves now yellow and decayed.

At the end of June, or commencement of July, a
small bulb will be observed to have become developed upon
the side of the corm A at its lower part. This corm we shall
call B. At this time it is little larger than a grain of
wheat, and lies in a small fissure on the side of the parent
bulb, a little above the origin of the radicles. It increases
slowly and gradually in size till the beginning of August,
when it appears as a mere dilatation of the flower-stalk,
which it then commences to put up.

In September the flower is in full perfection, the
long tube of the perianth of which, has raised the six-petalled
lips to the height of from six to eight inches above the
ground. The flower remains for two or three weeks and
then dies down, and nothing of the plant is seen above
the surface, till the beginning of February, when the leaf-
stalk commences to rise.

If at this time the plant be taken up, A and B will still
be found to be united, but B will be observed to have in-
creased little in size, since autumn, being but little lar-
ger in diameter than the leaf-stalk.
The bulb \( B \) then grows little during the autumn, but in winter it increases rapidly in size, in April it is like a large hazel-nut, and from that time it increases still more in size, till the end of June, or beginning of July, when it is as Dr. Christian states as large as an apricot.

In April the leaf-stalk is found perforated by a fine group of dark green leaves, generally three in number, and having within their sheath, the capsules which ought to ripen their fruit in the course of summer.

In May the old bulb will be found dry and withered, and with very little stalk, and in July, if the plant be taken up, three bulbs will be found: A now reduced to the form of a membrane, bearing no resemblance to a bulb at all, \( B \) now arrived at full growth, and a new member of the series \( C \), the progeny of \( B \).

This third bulb \( C \), it is unnecessary for us to trace further; it follows a course precisely similar to that, through which \( B \) has passed, and which we have just described.

Our history is now complete, as far as regards the rotation of flowers, leaves, and fruit, but the life-time of \( B \) has not yet expired, for if we take up the plant in May of the third year, we still find the shrivelled remains of \( B \), and \( C \) large, firm and amylaceous, now bearing leaves, having the autumn previous flowered. We may go on still further, and if in July the plant be examined \( B \) will be found to have almost disappeared, \( C \) large
amygdaceous and extremely bitter, and at its base, a new bulb D of very minute size, which in the ensuing autumn will produce the flower.

Thus we have traced the growth of the bulb of Colchicum, from its infancy, through maturity, to decay.

It must be evident from the foregoing observations, that the plant is essentially biennial, but it has been thought by some to be triennial. "It sees a part of three successive years, but only outlines two revolutions of each season."

Of peculiarities in the growth of Colchicum, I might mention one, which has struck me forcibly on account of its frequent occurrence.

In February and August, instead of one leaf-stalk and one flower-stalk making their appearance, at their respective periods, I have often remarked that two have occurred, one on either side of the parent bulb. I believe this to be one of the effects of cultivation, as I have nowhere seen it remarked in descriptions of the plant, by Botanical authors.

Having observed in cases where the leaf-stalk was accidentally removed from the parent bulb, that a new bulb was thrown out from the top part of the old one, I made the following experiment, in order to ascertain if possible the cause of this peculiarity.

Two bulbs were taken up on 15 November; from these the leaf-stalks and their bulbs were detached, and the parent
bulb re-planted. Some weeks afterwards, a small leaf-stalk was observed to have been given off from the top part of each bulb, and on another occasion, on which the same experiment was tried, two of these leaf-stalks made their appearance; on both of these occasions, they were found to proceed from very minute bulbs, not larger than barley-corns.

I believe that there is always one of these adventitious bulbs, at the top of each parent bulb, but which I do not consider will ever germinate, where the plants are indigenous, unless the proper leaf-stalk and its bulb be removed; when they do so however, they always remain attached to the parent bulb, and are perfected in much the same time as the normal bulb of the leaf-stalk.

D. Christian has mentioned that the full size of a Colchicum bulb is that of a small apricot. This, I believe to be perfectly correct, in places where the plants are indigenous, but I have frequently procured Specimens from the Botanic Garden here, where they were cultivated for the purpose of examination, of the size of large apples, and in October 1849, I procured one, which weighed nine and a half ounces.

I have lately received from my brother, in North-Western Provinces of India, two specimens of Colchicum bulbs, which respectively bear the names of "Soninjan tulk" or bitter Soninjan, and "Soninjan sheepmi" or sweet Soninjan. Both of these were brought from Bombay, and I believe are identical with those men=
tained by Dr. Boyle, and minutely described by Dr. Verreaux.

The Sonianian corms resembles the corms of Colchicum "autumnale." The corms are flattened, cordate, hollowed or "grooved on one side, convex on the other. They have been deprived of their coats, are externally oblong yellow, or brownish, internally white, easily broken, jamarine, odorless, tasteless "or nearly so, and worm-eaten." This description entirely coincides with the specimens in my possession. They are so easily broken, that when received, nearly one-half were reduced to powder.

Geoffroy has correctly pointed out, how they may be distinguished from the corms of Colchicum autumnale. "They are not sugar, are white internally, are moderately hard, easily broken, and form a whitish powder; whereas the dried corms of Colchicum autumnale are sugar, softer, and have a reddish or greyish tint, both internally and externally."

The Sonianian corms appear to me to resemble the bulb of Colchicum autumnale; they are much smaller than the preceding, and possess considerable lowness, they are not so easily broken. Verreaux states that they are marked by longitudinal stripes, indicative of a laminated structure. I have failed to discover this in the specimens in my possession, and I presume if the true herbaceous possesses a laminated structure, it cannot be considered as a true cormus, and therefore cannot belong to the Colchicum tribe.
The Batak use both kinds in Acheumatism, and in many nervous disorders, in doses of two to four grains of the powder, three times daily.

Seeds received from the same source, a few seeds, which were said to be those of the Helicium Myricum. They were about the size of, and altogether not unlike Lapini seeds.

They are used in the same diseases, as the Sonijan, and are said to be diuretic.
We now come to consider Colchicum pharmacologically. Every part of the plant excepting the leaves has been used in medicine. The flowers have been used galenically; and have been supposed to be that part of the plant used in the preparation of the Pan medicinalis officinalis. In most modern pharmacopoeias, as in those of the British Empire and of France, the seeds and corms are alone official.

As found in commerce, the seeds of Colchicum are rough, small and almost spherical, imparting to the taste, a bitter acridity which even surpasses that of the bulb. They are about the size of Millet seeds, and have a dark brown colour.

The slices of the bulb are greyish-white, somewhat kidney-shaped, and have a dark brown covering exteriorly. When in good preservation, they are dry and easily fractured. They should not be thicker than a half-crown. Their taste is extremely bitter and somewhat acid.

There has been much difference of opinion as to the time of year in which the corms should be taken up for medicinal use. According to my own observations, the middle of July is the most fit time for this purpose. The bulb is then of its greatest size, it is firm, moonless and extremely bitter. The bitterness is the character which affords the best criterion of its activity.
According to some, the amount of starch and gumness in the bulb are the proper guides; but the amount of active principle does not necessarily bear any corresponding ratio to that of the starch, in part of which I may observe, that the bulb, when more spongy and watery, and free from browning, as in April, possesses almost as much bitterness, as when nearly mature, a circumstance remarked by D. Christian, and which I have confirmed by repeated observation.

It is obvious in the face of this fact that we can place no confidence in the test of goodness, proposed by D. A. Thomson.

In 1820 D. Thomson published a paper, showing the tincture of Quercus to be a test for Glutin, and pointing out its applicability as a test for the goodness of Pallescens.

His manner of procedure was as follows — Ten grains of the bulb were rubbed in a mortar, with sixteen minims of Distilled Vinegar, and immediately afterwards, sixteen minims of the tincture of Quercus were added. A beautiful coeruleum, the colour was immediately produced with those specimens which, according to D. Thomson, were good.

I have made with a specimen which I knew to be good, from its bitterness, a similar experiment, and obtained no coeruleum blue colour, but only a dirty brown.

In the same year, Mr. Britten published similar experiments which he had made, but with entirely different success from D. Thomson.
In order to ascertain what the true nature of this test might be, I expressed the juice from several bulbs, and having filtered away the starch, applied the test to the filtered fluid; a beautiful blue colour was immediately produced. It was evident from this that the Glutin was not the part acted on. The blue liquid was then boiled, the albumen coagulated, and the blue colour remained with the coagulum, whilst the remaining fluid was free from colour. On continuing the heat to 212° the blue colour entirely disappeared. Again, the test was applied to the starch collected on a filter, but without effect. The experiment was varied in the following manner.

The fluid was first filtered, to separate starch, then boiled and filtered to separate Albumen. On the test being applied to both the filtered fluid, and the Albumen on the filter, no blue colour was obtained.

From these experiments, I draw the following conclusions—

1. That Albumen is the principle acted on.
2. That a greater heat than 180° destroys this action.
3. That the value of this test, is to prove that the bulbs have been dried at a temperature not higher than 180°.

During the summer of 1849, I endeavoured, by another process, to determine the medicinal value of the drug at different seasons, by ascertaining the amount of alkaloid contained in the bulb, at monthly periods, which if successful, I was confident was the only method of determining with
perfect purity the time of year when bitterness prevails most, and the fullest time for gathering for medicinal use. Having carefully expressed the juice out of several bulbs, boiled and filtered, to separate Starch and Albumen, attempted precipitation in a graduated test-tube, with mixture of Galls to determine by the bulk of the precipitate, the amount of active principle. This however failed, on account of the precipitate partly floating to the top, and partly remaining at the bottom. This I blamed was occasioned by the fluids being of different densities, and I was convinced that if an alcoholic solution of the bulbs were made, and the test applied, the experiment would succeed. This however, I have had a subsequent opportunity of trying, but with little better success; as the small quantity of active matter procured from a necessarily small amount of bulbs, gave an almost imperceptible precipitate. A watery solution of Tannin might have, when applied to the expressed juice, superseded the difficulty, resulting from the two fluids being of different densities, but this I have not had a subsequent opportunity of trying.

A protracted analysis of the bulbs, at different periods of the year, might give an approximation to the quantity of active matter contained, but time has not permitted me to devote so much attention as this would require at repeated intervals during an entire season.

At whatever period the bulbs are taken up, they should be
sliced into small pieces, about the thickness of a half-crown, the outer membrane having been previously peeled off. They should be then spread out upon trays to dry, either at ordinary temperatures, or at any rate not exceeding that of 150° F. after which they must be carefully preserved from moisture.

Dr. Howltor recommends that the bulblet should be stripped of its dry coating, carefully deprived of the bud or young bulblet, and then dried whole.
Chemical History of Colchicum.

Vegetable Chemistry has of late years made great and rapid progress, and in no way more practically useful, than in the discovery and examination of the organic bases, which constitute the active principles of many vegetables, used as medicines.

It is hardly necessary to do more than allude to Quinine and Arsenic, as examples of the valuable contributions which Chemistry has made of late years to the resources of the Medical Practitioner.

It happens however in many instances, that we may be quite aware of the existence, in a medicine, of an active principle, and yet on one hand, from the difficulty of obtaining it pure, or on the other, from the activity of the crude drug in small doses, it may, in a practical point of view, be of little consequence to ascertain the precise chemical and other qualities of the active ingredient. Yet assuredly, the more we can investigate these active principles, the more precise will be our knowledge of the properties of the original drug.

Colchicum is a case in point, we know that it possesses an alkaloid, which is apparently its active part, but its properties, chemical and medicinal, remain in a great measure still to be investigated.

The active principle of Colchicum autumnale, was, on
the authority of Velletria and Carpentor, supposed to be identical
with that of Veratrum album, namely Veratrim.

Zeger and Hesse, however, discovered in Chelchemia, an al-
kaloid differing from Veratrum, and which was named by them
Chelchemia.

The following was their process for preparing it.
The seeds were immersed and exhausted by digesting them in
Chelchemia Spirit, acidulated by Sulphuric acid. The
excess of acid was removed by the addition of Hydrate of Lime,
and the fluid filtered, to separate the Sulphate of Lime,
which was deposited. Any excess of Lime which might
remain in the spirituous fluid, was removed by the careful
addition of one or two drops of Sulphuric acid. The fluid
was then filtered and distilled to recover the Alcohol, and
the watery residue of the distillation was mixed with an
excess of Carbonate of Potash. The precipitate which fell was
dried between folds of gilt paper, and then was taken up
in Absolute Alcohol, the alcoholic solution decolorized by Annul
Charcoal, and evaporated for crystallization at a gentle tempera-
ture.

By this process, it is said, Chelchemia may be obtained both
from the flowers and cones.

During the winter of 1824, and again during that of 1830,
I endeavored to procure Chelchemia by this method, but without
success, although I followed Zeger and Hesse's process exactly,
and was particularly cautious in the application of heat, for it is well-known, that many of the vegetable bases, such as those from Hyoscyamus and Stramonium, are very easily destroyed by an undue elevation of temperature, which may probably account for those and other similar bases, not having been accurately examined and analyzed.

Colchicum is perhaps as easily destructible as Hyoscyamus and Atropa, and I have not found in reading that any other chemist has prepared Colchicum except Feiger and Hess. Any account of its properties therefore rests solely on their authority.

"Colchicum crystallizes from its alcoholic solution, when that is mixed with water, in ester-like prisms and needles. If the alcoholic or ethereal solution be evaporated, the Colchicum remains in the condition of a transparent varnish-looking substance."

It was in this state that I procured Colchicum, on both occasions. I am considerably sceptical with regard to the crystalline nature of Colchicum at all; for having dissolved this matter successively in Alcohol, Ether, and Water, and leaving the solutions to spontaneous evaporation, no trace of crystallization ever appeared, but the Colchicum was invariably deposited in the state of a brown, pellucid, looking mass.

This brown mass was without smell, and possessed considerable bitterness; the bitter taste being generally followed.
by a slight sense of irritation in the throat, but not with the intense symptoms of Veratrum.

Calcein in its hydrated condition, has but a feeble alkaliic reaction, but neutralizes acids completely, and forms with them salts, which are in part crystallizable, and which have a bitter, acid, and slightly astringent taste.

Calcein dissolves pretty readily in water. It is very soluble in rectified Alcohol and Ether.

It strikes a yellow colour with solution of Chloride of Platinum, but does not form an insoluble Platinum chloride with it. Solution of Solsco causes a white precipitate, and with solution of Iodine, it becomes rapidly turbid, producing a beet-brown colour.

It is persistent in the air, melts easily at a gentle heat, and is destroyed by a higher temperature.

The alkaloid Veratrum discovered by Belliera and Cureton, in the root of Veratrum album, and in the seeds of Helminthias or Arum officinalis, is prepared much more easily. Found on difficulty in proving it by the process of the Edinburgh Pharmacopeia, which is nearly the same as that described by Coxe, and which is as follows:

"Grieve the seeds of Curculilla in a coffee-mill, and from them into a thick paste with rectified spirit. Pack this firmly in a press, and press rectified spirit through it till the spirit ceases to be altered. Concentrate the spirituous solution by
distillation as long as no definite forms; and pour the residue
centrifuged, while hot into twelve times its volume of cold water.
Filter through calcic, and wash the remainder on the filter as
the washing precipitate with ammonia. Collect this
precipitate on a filter, wash it slightly with cold water, and
dry it, first by infection with filtering paper, and then in the
oven-bath. A small additional quantity may be got by con-
centrating the filtered ammoniacal fluid, and allowing it to
cool."

The Pharmacopoeiæ, I think, has erred in not ordering the
immense volume of water into which the hot alcoholic solution
is thrown, to be evaporated down, for in my experiment, the
quantity of water amounted to twenty-four pints, and it was
found quite impossible to precipitate this immense quantity
by ammonia. It was therefore evaporated down to four pints,
when an abundant precipitate was obtained.

The quantity of impure Feratrace, which was obtained from fifty
six ounces, was fifty grains, but Pruche states that a drachm
of Feratrace may be obtained from one pound of seeds, but as
D'Outter remarks "the product to be so large must be
very impure."

The impure Feratrace which I obtained, was taken up in very
weak hydrochloric acid, decolorised with animal charcoal, and
reprecipitated by ammonia. It was then nearly pure white,
and weighed twenty-seven grains.
That Veratrum and Colchicum if Bentinck's and Bessey's account of the
latter be correct, are in no respect identical, is obvious from these:
great difference in properties: viz.
1. Veratrum is entirely incrystallizable. 11. Colchicum crystallizes in delicate acicular
  prisms.
2. Veratrum possesses a powerful povy. 12. Colchicum, though extremely bitter,
  resists acidity of taste.
3. Veratrum, when it comes into 13. Colchicum possesses no stimulatory
  contact with the nostril, causes effects at all.
4. Veratrum is almost entirely inert. 14. Colchicum is very soluble in Water, in
  Alcohol and Ether. It is soluble in Alcohol and Ether.
5. Veratrum, by the action of nitric and, 15. Colchicum, nitric acid first
  becomes jet black, and then yellow. produces a bright violet, then an
  Sulphuric acid produces first a indigo-blue colour, quickly passing
  yellow, then a blood red, and lastly into green and yellow. Sulphuric
  a fine violet colour. 16. acid colours it yellowish-brown.

These comparative characters are sufficient to establish the com-
complete dissimilarity of these two bases.

Calcium has not yet been analyzed, and therefore no formula of its constitution exists.

Perez and Lese, although they did not analyze Calcium, as contained its physiological properties and compared them with those of Venetia.

The following experiments are related by them.

One-tenth of a grain of Calcii, dissolved in warm alcohol, was administered to a cat eight weeks old. These formed immediately, with much girth at the mouth.

At the end of about an hour, there were abundant liquid injections, and then followed after an interval several attacks of vomiting.

The gait of the animal became staggering, it fell, rolled from side to side, uttered a plaintive cry, and appeared agitated by convulsive movements. These symptoms augmented more and more, and death took place in twelve hours.

On opening the body, the stom...
It is obvious from these experiments, that the poisonous qualities of Colchicum, are essentially those of the irritable fluid, whilst from the rapid action of Veratria, and the absence of post-mortem appearances, it seems to have produced death by an action on the nervous system.

No other important principle has been announced as existing in Colchicum, except the alkaloid discovered by Geiss and Hess. It was the substance taken by Pelletier and Cavetron, for Veratria, and according to their statement it was combined with Celic acid.

The following is their analysis of the Colchic:

- Fatty matter composed of:
  - Oleic
  - Stereine
  - Potashic acid

- Supergallate of Veratria.
- Yellow Colouring matter.
- Gum.
- Starch.
- Fumitory.
- Lignum.
Soltre also examined the bulb of Colchicum and found that it contained

<table>
<thead>
<tr>
<th>Component</th>
<th>March</th>
<th>October</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatile acid Matter</td>
<td>0.21</td>
<td>1.12</td>
</tr>
<tr>
<td>Soft resin</td>
<td>0.04</td>
<td>0.06</td>
</tr>
<tr>
<td>Crystallizable sugar</td>
<td>5.91</td>
<td>2.72</td>
</tr>
<tr>
<td>Uncrystallizable sugar</td>
<td>0.81</td>
<td>1.65</td>
</tr>
<tr>
<td>Bitter extractive</td>
<td>0.61</td>
<td>0.52</td>
</tr>
<tr>
<td>Difficulty soluble extractive</td>
<td>0.30</td>
<td>0.52</td>
</tr>
<tr>
<td>Gum</td>
<td>0.81</td>
<td>1.65</td>
</tr>
<tr>
<td>Starch</td>
<td>7.46</td>
<td>10.12</td>
</tr>
<tr>
<td>Lignin</td>
<td>2.32</td>
<td>1.61</td>
</tr>
<tr>
<td>Extractive, soluble in Alcohol</td>
<td>0.61</td>
<td>0.52</td>
</tr>
<tr>
<td>Water</td>
<td>81.01</td>
<td>80.31</td>
</tr>
<tr>
<td></td>
<td><strong>99.90</strong></td>
<td><strong>100.80</strong></td>
</tr>
</tbody>
</table>

He found by this analysis that in March the Starch is diminished three per cent, and the bitter extract greatly increased.

Another analysis was performed by Helmundi and Holetti. One part of Colchicum bulbs, pulped in a mortar, and digested for 24 hours, in 12 parts of Water, furnished a pale-colored solution, which in point of taste, did not materially differ from the root itself.

This fluid acted as follows upon various chemical agents:

1. It reddened litmus.
(2) Alcohol precipitated white flocks.
(3) Lannun threw down a precipitate insoluble in nitric acid.
(4) The mineral acids had little action upon it.
(5) Chloric threw down a quantity of slightly coloured flocks.
(6) Oxalic acid, and Oxalate of Ammonia produced abundant precipitates.
(7) Solutions of Lime and Barista precipitated white flocks.
(8) Potash and Acetate of Lead formed a precipitate, which was partly soluble in an excess of Acetic acid.
(9) Potates of Mercury and Silver produced white precipitates, insoluble in nitric acid.
(10) Chloride of Tin caused a precipitate.
(11) Nitrate of Barista-
(12) Solution of Gelatin { } did not affect it.
(13) Sulphate of Iron

From these tests, the author drew the following conclusions:

I. The existence of free acid.
II. The existence of Guemos (more probably Albumen) indicated by precipitation by Alcohol.
III. The existence of animal matter (more probably Chloric) indicated by precipitation with Lannun.
IV. The existence of Oxygenable Extractive or Alumnumous matter, indicated by precipitation with Chloric
V. The existence of a peculiar matter, probably Malic
acid, indicated by precipitation with Nitrate and Acetate of Lead.

VI. Of the existence of Extractive matter, indicated by precipitation with solutions of Lime, Barity and Chloride of Tin.

VII. A Salt of Iron.

VIII. A Salt of Hydrochloric acid, indicated by precipitation with Nitrates of Mercury and Silver.

IX. The presence of Starch.
The seeds have only been analysed qualitatively, by Buchner, but his notice of the constituents is not worthy of remark.
Pharmacy of Colchicum.

Much discussion has been held respecting the comparative value of the different preparations of Colchicum, and especially as to whether the seeds, or corns, yield the most eligible forms for its administration.

"It might be reasonably expected, from the virtues of Colchicum, being found to reside in the seeds, as well as in the root, that the former would yield a medicine of greater uniformity, being in a state of more perfect and determinate maturity, requiring less care in the collection and preservation, and being less liable to have their powers impaired."

"My experience of the several preparations, fully confirms this supposition."

This is upon the whole, the opinion most generally entertained by practical physicians.

The employment of the seeds in preference to the root, was first insisted on by Dr. Williams of Ipswich.

It was my full intention to have selected from the writings of various authors, their opinions with regard to this subject, but on attempting to do so, I found that although generally mentioned whether the preparation used was of the root or seeds, no distinct reason was specified, why one should be employed in preference to the other, if preference
there was, and therefore little importance could be attached to such a statement.

There are at present seven preparations of the bulbs and corms of Colchicum, official in the three British Pharmacopoeias:

(1) Acetum Colchici, E. L. D.
(2) Extractum Colchici Aceticum, E. L.
(3) Extractum Colchici Corni, L.
(4) Vinum Colchici, E. L.
(5) Oxymel Colchici, D.
(6) Tinctura Colchici, E. L.
(7) Tinctura Seminum Colchici, D.

The mode of preparation of these is as follows:

(1) Acetum Colchici, E. L. D.

Process. Dilute. Dist. Take of 60 parts of the Colchicum in the Vinegar 180 parts, Chiefly with 10 parts of Colchicum bulb, sliced, 3 ounces; for three days in a covered glass vessel; Distilled Vinegar, sixteen fluidounces; strain and express strongly, filter the Proof-Spirit, one fluidounce. 1 legion, and add the spirit.

(2) Extractum Colchici Aceticum, E. L.

Process. Dilute. Dist. Take of 60 parts of the Colchicum to a pulp, gradually adding the acid; express the liquid and evaporate it in a porcelain vessel, not glazed.
(3) Extractum Colchici Coni. L.  

Process.  Laud. Take of Colchicum—express the juice, and without decoction, evaporate to the due concentration, stone mortar, with a little water; over the vapor—bath, with constant stirring.

(4) Finis Colchici. L.  

Process. Edic. Laud. Take of Colchicum, sliced and dried 8 ounces; press strongly the residuum, and filter the liquids.

(5) Oxyrand Colchici. D.  

Process. Dub. Take of Colchicum in the vinegar in a glass vessel for 24 hours; strain; express strongly, and add the honey. Boil the mixture, stirring it frequently with a wooden spoon, till it attain the thickness of syrup.

(6) Lactura Colchici L. Lactura Seminum Colchici. D.  

Process. Edic. Take of Colchicum—add twelve hours, and then finally packed in the cylinder.
(7) Siretura Colchici Composite. L.

Process. Linq. Take of 

Colchici seeds, bruised, nine ounces; \( \text{Macerate for fourteen days, and strain.} \)

The doses of the different preparations are as follows:

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colchici com. e. l.</td>
<td>Gr. ad gr. v. ter indies vel secundum (Christian)</td>
</tr>
<tr>
<td>Colchici autumnalis bulbos. D.</td>
<td>Gr. ij. ad gr. viii (Heligan)</td>
</tr>
<tr>
<td>Extractum Colchici Acetici e. l.</td>
<td>Gr. ss. ad gr. ij ovale (Christian)</td>
</tr>
<tr>
<td>Extractum Colchici Bormi. L.</td>
<td>Gr. &quot; &quot; &quot; &quot; (&quot;&quot;&quot;) &quot; &quot; (&quot;&quot;)</td>
</tr>
<tr>
<td>Vinum Colchici e. l.</td>
<td>Min. x. ad ftd. ij.</td>
</tr>
<tr>
<td>Siretura Colchici e. l.</td>
<td>Min. x. ad ftd. ij. ter quartusius indies (Christian)</td>
</tr>
<tr>
<td>Siretura Seminum Colchici. D.</td>
<td>Ftd. j. ad ftd. ij (Heligan)</td>
</tr>
<tr>
<td>Siretura Colchici Composite. L.</td>
<td>Min. x. ad ftd. ij (Christian)</td>
</tr>
<tr>
<td>Acetum Colchici e. l. D.</td>
<td>Ftd. ss. ad ftd. ij ovale</td>
</tr>
<tr>
<td>Ozymel Colchici. D.</td>
<td>Ftd. j. ad ftd. ij. (Heligan)</td>
</tr>
</tbody>
</table>

In some cases the doses given by Dr. Heligan are somewhat large. It is best always to begin with very small doses, which may be gradually increased.

Of all these preparations, there are perhaps only four which can be considered as in use at the present day. These are, Acetum Colchici, Extractum Colchici Acetici, and Siretura and Vinum Colchici.

The Acetic forms answer best as diuretics, perhaps because they are weaker preparations, and not so apt to act upon the bowels. The Siretura and Wine are the preparations employed for
general purposes, but when it is desirable to exhibit Colchicum in the form of pill, the Acetic extract is certainly the most eligible form.

Since writing the above, I have ascertained that the Dublin Pharmacopoeia (last edition 1857) has admitted the Extractum Colchici acutum, and espoused the Oxymel Colchici.
Physiological Effects of Colchicum.

It is very difficult to state in a precise and definite manner what the action of Colchicum is, or to what class of medicinal agent it ought to be referred.

In medicinal doses it seems to have the property of lowering the heart's action, and to affect most of the secretions of the body, and hence, according to the circumstances under which it is administered, it may produce diuretic, emetico-cathartic or diaphoretic effects.

It has been regarded by some as an expectorant, and by others it is supposed to have a peculiar effect in stimulating the hepatic system.

It has also been regarded as having a powerful influence over the urin.

From the marked effects which it produces in Gout and Rheumatism, it has been regarded as possessing a specific action in these diseases, but this may be said to be a mere statement that it acts powerfully and successfully, for it does not appear that it often alleviates those diseases, without producing in a well-marked degree some of its ordinary physiological effects, such as lowering the pulse, causing Diarrhea, Diuresis, or Diaphoresis.

In large doses, there can be no doubt that it is an active mercurio-acid poison, but its action seems to be more
due to acid, than to mastic properties, as the effect on the
urine is generally secondary to that on the intestines.

One of its most remarkable physiological effects was desc-
drined by Dr. Chelius of Heidelberg.

Dr. Chelius found that the uric acid contained in the
urine of those taking Pilchium, was nearly doubled in the
space of twelve days.

In one case, the urine before taking Pilchium contained
0.069 per mille of uric acid; four days after commencing to
take the Pilchium, the proportion was 0.076; on the eighth
day it was 0.091; and on the twelfth day, it was 0.102.

Chelius obtained the same results in other instances.

Dr. Christie examined the urine of a patient taking Pilchium
and he found that in two days, the quantity of Urea was nearly
doubled.

"In the urine before taking Pilchium, there was no deposit
of Lithate of Ammonia. Its density was 1030. It contained
above forty-seven parts of solid matters in the thousand, and of
this quantity, twenty parts were Urea.

The specimens of urine pressed on the first and second days
after commencing to take Pilchium, were exactly alike; they
were very turbid, and their turbidity disappeared with a gentle
heat; the deposit was evidently Lithate of Ammonia. The density
of the first was 1033.5, and that of the second was 1034, which
are both very unusually high for urine not diabetic."
As they were obviously identical in their nature, Dr. Christian only analyzed the second. It contained seventy-nine parts of solid matters in a thousand, and of this quantity thirty-five were Urea. Dr. Christian suspected that the quantity of Urea was even greater, for not having added an excess of Nitric acid, some of the Nitrate of Urea might have remained in solution.

Through the kindness of Dr. Belliday Douglas, I had lately an opportunity of analyzing the urine of a sailor, who was a patient in the Royal Infirmary. He was under Dr. Douglas charge, for secondary Syphilis, but was otherwise healthy. I was permitted to give him a few doses of Lithium, in order that I might ascertain the physiological action of that agent on the kidneys, but before doing so I examined his urine. The density was 1.025. It contained no deposit, nor was it affected by heat or Nitric acid.

<table>
<thead>
<tr>
<th>Total Solids</th>
<th>27.500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>9.72.500</td>
</tr>
<tr>
<td>Urea</td>
<td>12.360</td>
</tr>
<tr>
<td>Uric acid</td>
<td>0.281</td>
</tr>
<tr>
<td>Inorganic salts</td>
<td>7.4136</td>
</tr>
<tr>
<td>Organic matter</td>
<td>7.4223</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000.000</strong></td>
</tr>
</tbody>
</table>
slightly deficient for, compare the standard of healthy urine as given by Rayerer. Density 1018.9.

| Total solids | 31.185 |
| Water       | 96.815 |
| Urea        | 13.838 |
| Urea acid   | 0.941  |
| Inorganic salts | 7.695 |
| Organic matter | 9.261 |
| **Total**     | 1000.000 |

On the third day after commencing to take Pilocarpium, the urine was examined. It possessed a slight turbidity, which became dissociated by heat. Its density was 1030.

| Total solids | 20.650 |
| Water       | 97.350 |
| Urea        | 15.570 |
| Urea acid   | 0.291  |
| Inorganic salts | 6.350 |
| Organic matter | 7.209 |
| **Total**     | 1000.000 |

Here it will be observed the Urea was increased by one-fourth, the Urea acid nearly doubled, and the Inorganic salts, and inseparable organic matters were considerably decreased.
The urine was again examined on the eighth day after commencing to take Colchicum, with the following results.

Density 1036. Incoherency rather increased since last examination.

It contained

<table>
<thead>
<tr>
<th>Total Solids</th>
<th>33.760</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>966.520</td>
</tr>
<tr>
<td>Urea</td>
<td>18.321</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>.750</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>7.286</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>6.933</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000 000</strong></td>
</tr>
</tbody>
</table>

Here then the Physiological action of Colchicum in increasing the Urea and Uric acid in the urine was well marked.

Having obtained these results from this case, (which are only further corroborations of many others) it was not considered justifiable to proceed further with the administration of Colchicum at this time.

It has been supposed, that under the use of Colchicum a remarkable change takes place in the system, namely that the Uric acid becomes converted into Urea; but this has not at all been substantiated, and from the above cases of Celsus, and the analyses which I have just noticed, we must be led to suppose that no such change occurs, but that an increase in both those principles is the result.
Dr. Graves states, that the beneficial action of Colchicum is not owing to its producing a more rapid excretion of lithate through the kidneys, but to the very remarkable property the plant possesses, of altogether putting a stop to the gradual formation of lithate.

Dr. Adercut says, that he has always found that the increase of fever was accompanied by a corresponding diminution of the waters in the urine. But from the previous remarks, I am inclined to believe that both of these suppositions are erroneous, and that careful consideration of the subject, combined with attention to the analyses which have been made, will satisfy every one of the truth of the statements which I have adduced.

With a view to ascertain the power of Colchicum as a sedative, I made the following experiments. In the first, my pulse being 87, in the second 82. On both occasions 20 minims of tincture Colchici were taken.

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 p.m.</td>
<td>Pulse 87</td>
<td>6 p.m.</td>
</tr>
<tr>
<td>9 p.m.</td>
<td>87</td>
<td>7 p.m.</td>
</tr>
<tr>
<td>10 p.m.</td>
<td>80</td>
<td>8 p.m.</td>
</tr>
<tr>
<td>11 p.m.</td>
<td>75</td>
<td>9 p.m.</td>
</tr>
<tr>
<td>11 1/2 p.m.</td>
<td>70</td>
<td>10 p.m.</td>
</tr>
<tr>
<td>12 -</td>
<td>65</td>
<td>11 p.m.</td>
</tr>
<tr>
<td>12 1/2 a.m.</td>
<td>65</td>
<td>12 -</td>
</tr>
</tbody>
</table>

No other physiological action was manifest, except slight nausea.
Poisonous action of Colchicum.

In large doses, Colchicum proves a violent irritant poison. The symptoms occasioned by it, are "severe vomiting and urgent diarrhoea, with a sense of burning in the throat, excessive colic and heat in the abdomen; great depression of the circulation, and sometimes, suppression of urine."

Sometimes no other symptoms exist, and death takes place from exhaustion, the effect of inflammation of the bowels. Sometimes death is preceded by headache, delirium, stupor and insensibility, denoting an action upon the nervous system."

Poisonous action on animals.

Peppler states that he has frequently given two or three bulbs to dogs, in June, without producing any sensible effects; this induced him to believe that climate and the season of the year have great influence on their deleterious properties. This has been in the season of the year, when the bulbs are supposed to possess their greatest activity.

Mr. Grant states "that cattle are affected by it only at the spring of the year, when the seed-vessel is fully mature. "It happens that the seed, if swallowed, adheres to the coat of the stomach, producing at the several points of its adhesion spots of inflammation, which occasion the death of the beast."
It is a curious fact that they are affected by the recent plant dry, for when dried and made into tea, it loses its deleterious property, and is then eaten by them with impunity. Whether, if taken in great quantity, it might not still be poisonous, has not been determined.

So Everard Home injected 180 drops of the venom in form of Oleum into the jugular vein of a dog. The animal immediately lost all power of voluntary motion. The breathing became extremely slow, and the pulse was hardly felt. In ten minutes, the pulse was 84; inspirations natural, (which are 40 a minute). In twenty minutes, the pulse was 60, inspirations 30; and a tremulous motion had taken place in the hind legs. In an hour, the pulse was 115 and irregular. The animal was capable of sitting up, but was in a state of violent tremor; the inspirations could not be counted. In one and a half hours, the tremor had gone off; pulse the same; the animal made ineffectual attempts to vomit, and continued to do so for ten minutes with great languor; inspirations 52. In two hours the pulse was 150 and very weak; the animal had vomited an ounce and a half of water; had vomited twice, each time bringing up a quantity of mucus tinged with bile, and had two liquid stools. In three hours had vomited again, and had another stool; pulse too weak to be counted. In four hours continued extremely languid, and in five hours, vomited some bloody mucus,
Autopsy — The stomach contained ounces tinged with blood, and its internal surface was inflamed. The duodenum had its internal surface universally inflamed. The same appearance was met with in the jejunum and ileum, and also in the colon, where it was more strongly marked than in the ileum.

Dr. Charles Landau was injected 180 drops of a strong infusion of Bleaching into the jugular vein of a strong dog. For the first fifteen minutes he did not seem to suffer the least inconvenience. In an hour and a quarter, he was sitting on his hind legs, the eyes were bright, and there did not appear any remarkable change. In five hours he was still capable of sitting up, but appeared much expectorated; and there was some difficulty of breathing, attended with an occasional hickory cough. His pulse was 118; the inspirations were 56. In five hours and a quarter, he vomited some bloody contents and expired.

Dissection. The stomach was in a state of gangrene; the duodenum, jejunum and ileum were in a high state of inflammation, approaching to gangrene. About two ounces of highly offensive gangrenous blood were found in the stomach; there was also blood in the duodenum, but not offensive. The colon, cecum and rectum were much inflamed; with here and there, deep scar-colored spots
of the size of a pea. One ounce and a half of fluid was taken out of the cavity of the chest. The arteries contained very little blood. The veins, auricles, and ventricles were much distended with blood, of a purplish-black color, not coagulated. The bladder was nearly full of urine of a deep saffron color. The gall-bladder was much distended with bile. There was an effusion of bile upon the livers.

Sendanmore made an experiment also with the expressed juice of Aichremum.

At 20 minutes past one o'clock p.m. a hundred and twenty drops of the expressed juice of the fresh roots of Aichremum, were injected into the jugular vein of a young tenner. Immediate signs of great debility were produced; he passed a natural aline discharge.

In two minutes he vomited about half an ounce of foetid bile of a greenish color. Rising upon his legs, he staggered as if intoxicated, and immediately fell. In five minutes the respirations were 52. In seven, the eyes were fixed; the pupils contracted; the hind extremities were stiff and drawn up.

In ten minutes he was upon his legs, passed a scanty bilious discharge, walked about, and soon again made great efforts, without effect to relieve himself; uttering at the time a cry of distress. He ran into a dark part of the room. In lying down, he had some sigmoid, and there was a precipitate calomel solution. Three o'clock. He was on his legs, with his back
period, and showing signs of distress in the bowels. His respiration was 42, he seemed capable of walking, but was very languid.

At four o'clock, the jaundice had increased, and he supported himself with difficulty on his legs; a copious discharge of mucus or saliva was proceeding from the mouth.

A little before five he appeared to be suffering much, was moaning continually, and took no notice on being disturbed. At six o'clock he was still much distressed in his respiration, and these were only twelve in the minute; the eyes were fixed, the teeth firmly closed, and he appeared to be dying.

At seven o'clock there was no perceptible change, except that his respirations had increased to 14 in the minute.

Nine o'clock. — He required only eight times in the minute, with much difficulty. His moaning was much fainter.

Ten o'clock. — He was found dead, and was quite cold.

Dissection. — The stomach was highly inflamed, containing about an ounce of dense mucus, mixed with granules black; the duodenum, jejunum, and ileum were highly inflamed; the inflammation decreasing in the colon, cecum and rectum. The whole intestines were lined with coagulated albumen.

The blood found in the auricles and ventricles of the heart was fluid, and very black; the gall-bladder was much distended with bile.

Sculamore performed the following experiment with the Acetum Calomii.
Three fluid ounces of the aetic preparation of Chlorium, now
standardised by Carbonate of Ammonia, were injected into the jugular
vein of a terrier dog of middle size.

In three quarters of an hour he seemed languid, and
shuddered a good deal, but was capable of running about.

In three hours, he exhibited great lassitude; the pulse
was 138, and irregular. In five hours and a quarter, on our
trying to ascertain his pulse and other symptoms, he started
off, and quite well. In another hour, he was seemingly
free from pain. Soon after the eyes were bright and open.

In ten hours, he appeared tolerably well.

On the following morning, at eight o’clock, he appeared quite
recovered; looked lively, and was sitting up. There was no sign
of pain, however, to move; he looked frightened. At six in
the evening, he was found in the same state. He had throughout
the day, assumed a sublimity of appearance; had not
moved from the spot where he was left last night; refused
both meat and drink; but had still a lively eye, and did
not seem so much inconvenienced by the medicine, as alarmed at
the operation.

On the following day, he had all the character which appeared
yesterday. In the course of the day, he passed numerous
almight evacuations, and also urine very freely. He gradually re-
covered.
Seventy minutes of Pan medicinals, with the sediment which it forms shaken up, were given to a large and very strong rough terrier, at half past ten, a.m.

Two o'clock - He was lying down and looked delirious.

Half past four - Pulse 95, ceasing and intermitting every fifth heart.

Eight o'clock - Pulse was softer, he had vomited some frothy mucus, and appeared very languid.

Next morning - Pulse 164, and irregular. The dog had recovered his strength.

Ten o'clock - A further dose of 160 drops was given.

Half past two - He looked dejected, the pulse was 134, and very irregular.

Four o'clock - Had brought up some opaque viscid mucus.

Six o'clock - Had vomited a quantity of frothy mucus, mixed with blood, and appeared altogether very ill. Rigors; the pulse was 80, and small, with intermissions after every five or six beats.

Half past nine - Seemed dull and languid; the pulse was 106.

On the following morning at 10 o'clock, he was found extended on the ground; had vomited a quantity of mucus; he was quite insensible, and now and then stretching out his limbs, and was much distressed; his inspirations were six in a minute.

At one o'clock, he did not seem to suffer.

Half past two - He was stretching himself out, as if in the
at the dying. There were slight convulsions of one of the legs. The pulsation of the heart was not to be felt; and no distinct respiration could be observed.

At three o'clock he had expired.

**Description** - The stomach was highly inflamed, and contained a dark brown fluid; the marks of inflammation increased in the duodenum, and through the jejunum-decreased in the ileum, and increased again in the colon, which appeared in a state of general ecchymosis from venous blood extruded under the mucous membrane.

The oesophagus and rectum were slightly inflamed.

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Eau medicinals in the transparent state, followed by the tincture of Calomel.

Sixty minims of eau medicinals filtered and quite transparent, were given at ten o'clock a.m. to a strong taper dog.

At two o'clock he was found vomiting a quantity of thin transparent mucus; the pulse was 130.

Half past three - he had vomited more mucus; and looked better, in liquid.

Half past four. Had again vomited mucus.

Eight o'clock. More frothy mucus from the mouth.

On the following morning it appeared that he had in the night passed a quantity of liquid alvine discharge, tinged with blood, and mixed with mucus; the pulse was 168, and in
Half past two - His looks were dejected; the pulse was 104, and
very irregular.

From 1 o'clock - He had vomited some dark viscid mucus.

At 3 o'clock - He had brought up a quantity of fetid, slime
mixed with blood; seemed greatly affected; had rigors; the pulse
was 80, and small, with an intermission at every fifth or sixth beat.

Half past nine - The pulse was 106, he looked dull and languid.

On the following morning he appeared quite recovered.

The next day, at half past twelve, six drachms of the

tincture of Atchinum, of the elixir, were given to this dog;
he soon became languid, and looked exceedingly heavy and

depressed.

At two o'clock he was very ill; the pulse was 96; the vi-

= spirations were laboured, and only 24 in the minute. There
was a copious discharge of viscid mucus from the mouth.

At five o'clock, the pulse was 120, and small; the breathing
was laboured, and he appeared to be in pain. HeThemes...
On the evening morning, he was found dead and quite cold.

Dissection: The stomach was much inflamed, as was also the esophagus, and the whole of the intestines.

The inflammation was most marked in the jejunum and cecum; the cecum and rectum were also inflamed, and interspersed with purulent exudates.

The bladder was contracted; the gall-bladder was much distended with bile; the stomach contained grumous and offensive starchy serum; a layer of coagulated lymph covered the internal surface of the large intestines very generally.

Dr. Robert Levison in an essay on Colubrium antinumale, describes several experiments, which he made on the lower animals, with different preparations of that plant.

On the 15th December, 36 minims of the Venenum serurium Colubrini were administered to a middle-sized dog, without any immediate sensible effect.

A short time afterwards it devoured a large quantity of meat, very greedily, and continued growling boxes for some time, with great acidity.

At 7 a.m. nearly four hours after he had swallowed the colubrinum, he ate another large quantity of beef, and lapped barley-broth with great eagerness. He was visited for the last time that night about 9 p.m., when he appeared in his usual state of health.
Kept morning, 16th December, at half past eight, sixteen hours after the Calomelum had been given, he seemed weak, low, and very sick. He remained prostrate on some straw in the corner of the room, and could not be induced to move. During the night he had been most severely purged, and in every part of the room were ejects from the stomach, in some places mixed with a fluid of a dark brown colour, in other places mixed with food, and near where he was lying, there were large watery evacuations intimately mixed with a fluid resembling blood. No attempts were made to vomit during the visits on this day, nor did he express by outward symptoms any indication of suffering acute pain. The eyes were hollow, and had a dull glazed appearance. In presenting food of the same kind that he devoured greedily the previous afternoon, he would not touch it. The prostration of strength, and inaccessibility to external impressions, became greater and greater throughout the day.

On visiting him next morning, 17th December, at a little after eight o'clock, he was quite dead, cold, and stiff. The food which had been placed before him yesterday morning had never been touched.

Dissection - The body examined at half past eleven, presented the following appearances; the intestines were found very much contracted, and vascular. The internal surface of the stomach, presented rather more purgative than natural, and
was lined with mucus; its cavity was nearly full of dark-brown
coloured bile, and the pyloric orifice was contracted; the duodenum
was much injected, and coated with mucus; the whole course of
the jejunum and upper part of the ilium were of the most
intense red colour. In the lower part of the ilium was ob-
erved a number of dark streaks slightly raised, running in a
longitudinal manner. The large intestines were likewise very
vascular, although not so vivid as in the small intestines.
In the ilium a large tapeworm, measuring considerably
upwards of a foot, was found dead. There was not the slightest
appearance of food or fecal matter in any part of the inte-
estinal canal; a large quantity of bloody serosity, mixed with
this mucus, lined the parietes, in almost their whole extent.
The gall bladder was full of dark-brown bile, and the urinary
bladder was distended with natural coloured urine.
All the other organs were perfectly normal.

Dr. Lewis also performed a similar experiment to that of
Dr. E. Stone, with the following results.

On 19th December, at a quarter past three, p.m. 180 minims
of Peruna hematinum Colchicis, into the external jugular vein
of a medium-sized dog, were injected.

During the introduction of the fluid, its breathing was moment-
arily very much depressed, owing (Dr. L. supposed) to the con-
striction produced by the entrance of the fluid into the right
side of the heart. On being let loose, the animal endeavored to make its escape from the room; the gait was perceptibly unstable, and in the course of a minute, it lay down on some straw in the corner, from which it could not be tempted to move. On being propped however, it remained standing for a short time, but very soon again assumed the recumbent posture. The muscles were affected with an universal shivering; and on standing to count the pulsations of the heart, these tremors simulated the contractions of this organ so completely, that there was difficulty in distinguishing the one from the other. Pulse 112. Inspiration 112 in a minute; the action of the heart, fluttering and air alternately. During nearly an hour, no decided alteration took place; and at no time was any perceptible change discernible on the pupil.

At half past six, about three hours after the operation, the dog had passed a large quantity of fecal matter, some watery stools, and likewise a large quantity of a fluid resembling dark venous blood. A very considerable quantity oficky-coloured venous fluid had also been vomited. The lower extremities were ascended upon the hinder extremities, but upon being raised, stood on its legs. Pulse 102, irregular and weaker; respirations 112 in a minute.

At half past nine, p.m. there was no very decided change. On being crossed, he had a very unstable gait. The eyes were dull, and glazed, and he had vomited large patches of a frothy fluid.
20th December, at half past eight, a.m. Had passed throughout the night, more stools resembling dark blood, and a quantity of the same fluid seems to have been ejected from the stomach. He had not touched food since the operation. Some proprietary pills were found on a plate which had been placed beside him, containing soup and meat. Could not be caused so as to stand up. Pulse weaker, 120 at last report.

At half past four, p.m., appeared more prostrated than at last report. The pulse was 150 in the minute, weak, thready, but not intermitting. Inspirations 32 in the minute. Remained much in the same state until seven o'clock, when he expired.

Dissection. The body was examined at seven, a.m., on the following day, twelve hours after death.

The intestines were very much contracted. The inner surface of the stomach presented many more rugae than natural, and was highly vascular. The whole course of the intestinal canal was of a deep red color, most intensely injected, and these appearances were better marked in the lower portion of the tube.

In the colon were the same longitudinal streaks mentioned in the other case; and the whole tract of the canal was lined with mucus, intimately mixed with bloody sanguine, similar to the fluid which had been evacuated. The gall-bladder and urinary bladder, as in the former case, contained a large quantity of their respective fluids. The kidneys were in a state of congestion, and the heart was in a state of hyper trophy, which has
ever, had evidently no connection with the administration of the medicines.

D. Lewis found that notwithstanding the powerful effect which Colbicium produces upon man and dogs, it acted with very different degrees of energy upon other classes of animals, and with the view of ascertaining in what respect this action is different, he made the following experiments.

On 7th December, half a drachm of the tincture seminum Colbicii, was administered to a small rabbit. It commenced eating immediately afterwards, and on the following day, nothing unusual was observed, except that it appeared to have passed a larger quantity of urine than natural.

On the 8th at six p.m., twelve hours after the last dose, one drachm was administered, and with the exception of a diuretic effect, no particular change was observed.

On the 9th no perceptible effect having resulted from yesterday's dose, at nine p.m., twenty-seven hours after the last experiment, two drachms more were swallowed, and no evident change was observed in the animal.

On the 10th at six p.m., twenty-one hours after the last dose, three drachms more were given. After one drachm had been introduced, the rabbit began to squeak, and to struggle violently; and upon being let loose, ran about as if in pain. The same effect followed after the exhibition of the second dose, but after
the third draught, it began to eat, and appeared quite as lively as usual.

Thus to a very small animal, in the course of four days, six drachms and a half were given; more than six times the quantity which proved fatal, with the most violent symptoms, to a dog, with little effect except acting upon the kidneys.

Another case is mentioned, where seventeen drachms were given in six days, without any material change being produced on the animal. And, says Dr. Lewis, when we consider the comparatively small quantity which in man and dogs produces the most deleterious consequences, we seem justified in arriving at the conclusion, that this medicine acts but feebly on the system of these herbivorous animals.

An experiment was also made on a cold-blooded animal, viz. a frog. In this case, in the course of six days, 350 minims were administered, with comparatively very slight effects being produced, and which might very well be attributed to the quantity of wine swallowed.

From the results of these investigations, Dr. Lewis says, it appears that we are warranted in concluding, that the action of Colchicum autumnale is most decided upon carnivorous and omnivorous animals, while its action on herbivorous, granivorous, and cold-blooded animals is comparatively feeble.
From these experiments, which have been detailed, and from the well-known characters of the authors of them, I may well be excused for not having been under the disagreeable necessity of performing them for myself. I have therefore dwelt longer upon this part of my paper than I should otherwise have done, under different circumstances, and will now proceed to consider the poisonous action of Cadmium on the human subject.
Poisonous action on Man.

I. The following case, illustrative of the poisonous effects of the seeds of Colchicum, is narrated by Mr. Faraday of Dudley. David Cole, oct. 24th, a stout muscular man, feeling pains in his bowels, to which he was subject, on the morning of 8th March, about six o'clock, swallowed, believing it to be pain, about two ounces of wine of the seeds of Colchicum.

He immediately discovered his error, but knowing its effects in a small dose, conceived it would be followed by vomiting and purging sufficient to avert mischief. He sought no medical advice till four in the afternoon, when he was first seen. He was sitting on a chair, his elbows on his knees. He said that he felt no inconvenience for an hour and a half after taking the dose, when pains in the bowels came on, but that he continued his work, until eleven o'clock, when pains in his stomach and bowels, retching, and copious vomiting of a yellow, rich fluid, compelled him to desist.

12 o'clock p.m. He describes the pain in the epigastrium as agonizing, and says it is like a knife piercing him. The retching is incessant and extremely violent, but no fluid is evacuated; there is tenesmus; a small quantity of foetal matter has passed. No tenderness on pressure, either, in the epigastrium or abdomen. The appearance of the tongue is naturally dusky; the pulse small, slow and feeble; breathing not much affected; the feet cold. His countenance is anxious, features sharp;
His cheeks, lips, and palpebrae, purple. On attempting to walk, says he thinks he shall lose the use of his limbs.

A mustard emetic was given, followed by copious draughts of warm water and gruel. These were soon returned, with apparently no mixture. Cathartic medicine was given, and immediately returned. He was put to bed; warm bricks were applied to the feet, and hot flannels to the stomach. To take forty drops of Laudanum immediately, gruel and coffee plentifully.

9 p.m. - The retching, vomiting, and pain in the stomach, continue with unceasing and violence; the fluid vomited contains a sediment like coffee grounds; very thirsty; has made little water. Twenty drops of Laudanum every two hours; a dose to the stomach; singapore to the feet; one every hour.

9th March - 6 a.m. Has passed a sleepless night; the symptoms remain unaltered. The eyes are sunk; feet warmer; pain generally natural; no perspiration; pulse scarcely to be felt; perspiration hurried; great thirst, no urine. Demence returned without focal matter.

Camphor, Calomel and Opium every three hours; an effervescing draught with brandy, every hour.

8 o'clock p.m. The retching and pains continued until four o'clock, when the bowels were much distended. Has since had copious liquid stools, dark-coloured, and very offensive, and
expresses himself better. Makes a few drops of urine, lies in bed for a minute or two after getting out of bed to the utmost strain. The pulse is scarcely perceptible and occasionally interminable. He is perfectly sensible, yet talks with effort, calls continually for water.

Aromatic confection, Carbonate of Ammonia, and Camphor mixture, with Brandy, every hour.

10th March. In the course of the night his stools passed six voluntarily, and in great number; his weakness increased, and he died a few minutes before five o'clock this morning, perfectly sensible to the last moment.

Sectio Cadaveris.

The face, neck, upper and front part of the thorax, in sides of the arms, front of each forearm, and the insides of the thighs, were covered with patches of purple efflorescence, as were also the integuments of the scrotum and penis. The muscles of the forearm were very rigid, and their fibres contracted into hard knots. The great omentum, instead of covering the front of the viscera, was turned up between the stomach and convex surface of the liver behind, and the diaphragm in front, from the efforts of vomiting. It was retracted, reduced in a portion of the peritoneum covering the jejunum. The stomach and bowels were coated with a thick, tenacious, but colorless mucus. On a portion of the mucous membrane of the stomach, near the cardiac orifice, and corresponding to its great arch, was a patch of reduced about
the size of a half crown piece; its section here did not vary in texture, quantity or colour, from that of any other portion of the membrane. Upon dividing it at this part, its section presented nothing beyond its usual appearance; there was no pusiness, no thickening, but a small quantity of blood was effused between it and the muscular coat, giving the reddened internal appearance. Careful examination of that portion of the reddened peritoneum covering the jejunum, demonstrated the like hemorrhagic condition of the vessels. Blood was effused between the peritoneal and muscular coats, but the mucous membrane corresponding to this portion was perfectly healthy — at least it was perfectly free from inflammation. No other trace of in-
flammation was observed in other portions of the abdominal viscera. The gall-bladder was distended with healthy bile. The urinary-bladder was contracted and empty.

The pleura costalis were much reddened. The lungs were of a most beautiful purple colour externally, did not capsule, and were gorged with black blood, which had become effused underneath the pleural funiculales in spots of various sizes; these were very numerous about their roots and edges.

The pericardium contained no fluid, no was it reddened; yet numbers of coagulated spots was observed in that portion of it at-
ached to the central tendon of the diaphragm, and also thickly interspersed upon the surface of the heart itself, more especially about the centre of the coronary vessels. Heart flabby, and its
structure easily broken down. The cause, the right auricle and ventricle, and the pulmonary artery, was filled with black-blood partly coagulated, partly fluid; the left auricle and ventricle empty.

II. The following case of poisoning by the powder of the bulb of Lobelia, is related by M. Chavallier.

A young man, 22 years of age, called M...., having conceived the horrible design of poisoning his wife, prepared on the 5th October last, two potions (wine heated, with sugar, in which is put toasted bread), the one for himself, the other for his wife. He had put in the latter, some powder of the bulbs of Lobelia. His wife, not having taken her share, and M.... having gone out, a person called Desouches came to visit him upon business.

Desouches said that Desouches was fatigued, offered to him the wine which had been prepared for herself. Desouches accepted; he then took a part of it, which he found very bitter; then he went away.

Desouches, after his departure, examined for some curiosity the vessel in which she still found some of the prepared wine. She perceived, on allowing the wine to pass off with precaution, that there was at the bottom of the vessel, a whitish matter, which she recognised by the odour to be granules of the bulb of Lobelia. She then had the suspicion that her husband had wished to poison her; she afterwards was satisfied of the cause of intestinal pains which she had suffered after having eaten...
some good which he had given her.

On his return, M.... appeared very uneasy, when he heard of the visit of Dsoncher, and how it had terminated. The next day, M.... wished again to poison his wife, in mixing in some soup, without doubt, some of the powder of Calomelum, but she was refused to eat it. This soup given to a dog, caused illness, and this illness lasted for three days.

The inquiry instituted to know what had become of the unfortunate Dsoncher, learnt, that he had scarcely left the residence of M...., when he had a sensation of violent burning in his intestines; and his legs bent under him, he was obliged to implore assistance from strangers in order to reach his own dwelling; where he satisfied a ravenous thirst, than he emitted great abundance of liquid and gelatinous matter; at last, after three days of horrible sufferings, he died. It was remarked that the abdomen was swollen like a drum, and that his countenance was of a black lividity. This man expired, while repeating, that he died for having taken a root along with

Mad.
III Case by Dr. Reubronat, of poisoning by Colchicum seeds.

Casper M., of Aesthausen, set 52, of a sanguine temperament, drank by mistake, on the night of the 18th February, 1830, one of a decoction made with a large spoonful of Colchicum seeds and three pints of water; he had, in the night, more than 15 stools and vomitings. Then Dr. Reubronat saw him next day he was in a disturbed state. The stools and vomitings were less frequent, the patient although weak, did not complain of any pain, and could raise himself; the abdomen was not distended, and it contracted spasmodically on being touched; the pulse was small and frequent; the stools which were very fetid contained small whitish membranes. The patient was made to drink a great quantity of warm water containing bitter. This drink provoked vomiting and stools; immediately after, coffee was ordered, and a strong infusion of marsh-mallow with lemon-juice. Except the vomiting and stools, no symptom could be discovered which could make us suspect an absorption of any part of the poison. Next morning, the 20th, at 8 o'clock, the physician found his patient in the following state:—

Face pale, respiration precipitate, groups, hoarseness, eyes sunken, pupils much dilated, tongue covered with a whitish matter, and could be put out only with difficulty; region of the stomach rather painful, breath, jaw, and ear = instant cold; pulse very frequent, scarcely perceptible; no thirst; stools more frequent since the evening, and
containing matter of a light-violet colour. He patient took
with pleasure, some medicinuous soups and coffee. Although
he replied correctly to questions addressed to him, his intellec-
tual faculties seemed to be confused.

Death at 10 o'clock.

Autopsy, 23 hours after death.

Countenance wizened, pupils much dilated, eyes sunken;
a remarkable striped appearance of all the muscles and muscles;
the abdomen scarcely more swelled than during life, was of an
extraordinary hardness, and showed peculiar stains, more num-
ergous in the cavity of the stomach, and at the sides, towards
the back; they were violet, greenish blue, striped, not uni-
formly, but in the air. The muscles were of a deep blue, when dried in the
air. The Spleen, towards the bifurcation was inflamed. The
Lungs, collapsed, small, pale, and soft to the touch, con-
aining much coagulated blood, on their surface, were large,
black, violet and brownish spots. The oesophagus was brown-

ish red, only its below the diaphragm, and at its opening
into the stomach; the cardia was of a violet-black colour.
The stomach, at its exterior surface was of a light violet,
and much deeper at the interior; the veins of the stomach
and other intestines were greatly distended with perfectly
black blood. The liver, in normal state, had a violet tint
at its concave surface; the gall bladder was bulgy, and
full of green bile. The large and small intestines were
Hardly inflamed without, and showed only a few red, brownish spots within. The other organs presented nothing abnormal. The brain and vertebral column were not opened.

In the same journal as the above, a case of poisoning by the leaves of Colchicum is mentioned. The individual died, but no autopsy was made.

Plumbeardt relates a case of poisoning caused by an infusion of a large tablespoonful of the seeds. In three quarters of an hour, the man was seized with griping, and then profuse diarrhoea and vomiting. Next morning, twelve hours after the poison was taken, his physician found him still affected with vomiting and purging, but not with pain; he seemed indeed to suffer so little, and to improve so much under the use of emetics, that he was thought to be fairly recovering. But next day, the pulse was almost imperceptible, the countenance and extremities were cold; the voice hoarse; the breathing hurried; the eyes sunken, pupils dilated; the epigastrium tender, and the forehead affected with pain; he died at twelve the same day.

Mr. Allin met with two cases of death within 25 hours, in consequence of a mixture being taken, which contained the active part of 0.8 grains of the dry bulb. And a third case of
death in three days, caused by three doses of a watery decoction, made each time with 260 grains of the broiled bulb collected in July. Severe purging and prostration followed each dose. There were no symptoms of any affection of the brain.

VII. Three American soldiers, who drank by mistake, a large quantity of Colchicum wine, prepared from the bulb, died without symptoms of burning pain, urgent thirst, and frequent vomiting of mucus. One of them, who took eighteen ounces, and died in two days, presented the leading symptoms of malignant cholera, viz. frequent vomiting, copious rice-water stools; cramps of the abdominal muscles, and region of the extremities, coldness of the skin, tongue and breath; blueness of the nails; dull, sunken eyes, contracted pupils; and collapse of the features. The two others had at first similar symptoms, which passed into those of chronic dysentery, and proved fatal in a few weeks.

VIII. Dr. Bleifus has related a case of poisoning by the leaves of Colchicum.

A man gathered the leaves in the beginning of May, and after cooking them, ate about two ounces for supper. In six hours he was seized with violent ache, vomiting and purging. In fifteen hours, when his physician first saw him, the countenance was ghastly as in malignant Cholera; the pulses...
dilated, and scarcely contractile, but the mind entire.
He complained of Chamatic pains in the neck, and burning
pain in the pit of the stomach. He had frequent vomiting
and purging; spasms of the muscles of the belly, coldness
of the skin, a small, slow, weak pulse; cramps of the
fingers and calves of the legs. Coffee and lemon-juice
allayed the vomiting, and a temporary amendment
ensued. But early on the third morning, he became worse,
and soon after, the narrator of the case found him dying.

IX. The flowers are not less poisonous than the leaves,
bulbs, and seeds. A case is mentioned in Beijer's Journal,
of poisoning with a decoction of some handfuls of the flowers,
where death occurred within 24 hours, under incessant colic,
vomiting, and purging.
In this case, the stomach, and duodenum, were only
inflamed.

X. Mr. Caffe relates a case of a young lady, who in order to
destroy herself, took five ounces of the Wine of Colchicum.
She was soon seized with acute pain in the stomach,
then with frequent vomiting; general coldness and pale-
ness; a sense of tightness of the chest, and oppression
of the breathing; a slow, thready pulse, and extreme pro-
stration; and subsequently, with severe, and constant cramps
in the soles of the feet. In eleven hours, she had less fev=176

gnent efforts to vomit, but was excessively exhausted.

In twenty hours, the pulse was imperceptible, and in two
hours more, she died.

There was no suppression of urine, no purging, no diminution
of sensibility, no delirium, no convulsions, no change in the
state of her pupils.

About a twelvemonth afterwards, her sister destroyed
herself by taking the same preparation, of which she took
the same quantity, and she died with exactly the same
symptoms in 28 hours.

On examination—In neither of these cases was there any
inflammation detected.

A case of poisoning with the seeds and leaves of Colchicum,
in which the effects on the nervous system are well-marked,
is related by Dr. Seiling.

A boy, six years old, who, on the 27th June 1836, had
eaten of the seeds and leaves of this plant, was attacked
the same night with convulsions, which soon assumed the
appearance of Opis the terrors. He slept for some time, but
soon another similar attack ensued, and after this had
ceased, spontaneous vomiting set in. In state of Anoxium,
Sleeplessness and Copper were administered. The patient
lay upon his back and rolled about his head; he passed his
June involuntary, and his pulse became thready and
triumphant. On the 28th and 29th, he seemed somewhat re-
covered. 30th. The sclerotic of the left eye slightly red-
colored, and a small white macula in cornea.
July 1st. Within a few hours, a perfectly capsular cataract
had formed.
July 2nd. The quantity of lymph in the bottom of the anterior
chamber had diminished; the respiration was accelerated.
3rd July. The cornea has again become clear, and the mac-
ulae have entirely disappeared. Elbow and knee joint of
the left side, swollen, hot and painful; hemiplegia of the
right side; perfect loss of hearing; grinding of the teeth; and
gastrorrhagia. 4th July. The right side perfectly paralytic;
abatement of the other symptoms; the cornea is again tran-
sparent, but the opacity of the lens is more extensive; 5th July. Con-
celness of the whole of the left side; pulse 180. 6th July. The
patient sat something for the first time. Continual diarrhea.
The left eye is smaller; the posterior chamber has again become
somewhat clear, but a yellow fleecy membrane protrudes
through the pupil, which is of natural size, and contracts slug-
gishly. The patient refuses every thing. 7th July. Sclerotic
of left eye is again redder; the fleecy membrane round the
edge of the pupil, has pushed itself into the anterior chamber,
and there adheres immovably. In the posterior chamber, the
opacity of the lens is still visible, but smaller than formerly.
The eye is dull, the pupil extremely sensitive. 18th July.

The eye is again normal; every quarter of an hour, a quantity of urine is passed; pulse 180-185, smaller, and harder. This state continued with little change until the 30th. At this period, the opaque lens appeared to withdraw deeper into the posterior chamber; and on the 23rd, the eye appeared perfectly well. 28th July. Convulsions, and loss of feeling on left side.

The sclerotic of the left eye appeared again more reddened, and in the bottom of the posterior chamber a slight opacity which seemed to affect the crystalline lens; the pulse thready; the breathing had been for some days intermittent. On the night of the 8th August, the convulsions disappeared; a spot was visible on the cornea; the pulse almost imperceptible. 13th August. The opacity of the cornea disappeared, and a greenish opacity was visible in the posterior chamber. 14th August. Violent convulsions, in which however, the paralytic side did not pantake. At three in the morning, the patient died. The dissection was not allowed. The disease in this case, which began within 26 hours after taking the poison, and only ceased at death, is well worthy of observation.

XII. Garibaldi records, that a servant was killed, by taking the flowers of Colchicum, in Intermittent fever, in which, they are said to have effect.
One ounce and a half of the various tincture of \textit{Chelirium}, was by mistake, given one evening to a feeble man, aged 33, labouring under Chronic Ab heckmation. No complaint was offered for at least one hour after this accident; but then he became sick, next retching came on with acute pains referred to the stomach, to which vomiting and purging soon succeeded. This state continued the whole succeeding night, and a great part of the day following, when the alimentary evacuations ceased, but the most distressing nausea continued, with retching frequently. The stools were in the course of the night, often involuntary, but not bloody. Excessive thirst came on the day after the accident, and continued till death, with severe pains of the stomach and bowels, which occasioned fomentations to be employed. In the evening, the patient seemed nearly exhausted; \textit{Chelirium} appeared; the pulse could scarcely be perceived; he lived, however, through the second night, but died the following morning. In dissection there was no appearance of inflammation of the bowels, but redness of the stomach.

Mr. Dillon has related the following case.

Susan lying was about 30 years of age, and of good health and constitution; she was about two months gone in pregnancy of a bastard child, and, having read in a newspaper, that a woman was taken up for caus[ing] abortion by taking Meadow-
saffron, she determined on getting rid of her brother by a similar measure. She accordingly bought two pennyworth, and made an infusion of it, which she took on an empty stomach, early in the morning of the 10th of March 1824. I was called to her about four o'clock in the afternoon of the 11th, and on inquiry learnt that she had miscarried the preceding evening.

Mrs. Dillon found her in a very hopeless state; her extremities were quite cold, and the whole of her body, particularly the hands, feet, and face livid; the glossy stare of impending death was in her eyes; the respiration was hurried, and the pulse could not be felt at the carotids, and but faintly at the heart. Notwithstanding the sensation was undisturbed, and she gave a clear account of what she had done, her most general symptoms for so doing, and the effects the poison had on her.

She said, that in about half an hour after she had taken it, her stomach became sick, griping came on, and a violent purging, which continued with great severity. She had had no medical assistance, and had passed a most wretched time from the morning before, and was so tormented with pain and purging, that she had not a wink of sleep in the course of the night. Mrs. Dillon administered large draughts of brandy and spices, but to no effect, as she died in two hours after.

The body was opened next day, and all the viscera were found perfectly sound, with the exception, that the mucous membrane
of the stomach and bowels, was deadfully inflamed, throughout its course.

XX. Dr. Anthony Todd Thomson, has narrated the following interesting case.

The subject of the following case, John Goodrich, was an Irish laborer, of strong muscular conformation, sanguine temperament, and red hair, who had enjoyed uninterrupted health, until he was attacked with Chymation, in the relief of which he was ordered the following prescription.


Sum: cochl. ij magnum 6ta quaque hora quotidie.

At short time after the first dose of the medicine was swallowed, the patient vomited; the vomiting increased after the second dose; and after the third, his nose began to bleed profusely; his strength declined; his skin became hot, and was soon covered with moisture; and the vomiting which had not abated, was accompanied with violent purging. He slept a little on the following night, but towards morning, he became insensible. He took no food on the following day, but expressed an earnest desire for cider, which, however, his wife refused him. In the course of the forenoon, he was visited by the gentleman who had prescribed the medicine, while
His wife was absent; and not having heard from the poor
man, that the medicine had operated so violently, he desired
it to be continued, and administered a fourth dose to him before
leaving the house. All the symptoms already described, re-
curred with increased violence; the patient became delirious;
and leaving his bed, insisted upon going to his work. His
wife, who in the meantime had returned, succeeded in
quelling him, and gave him some cider which he drank
with avidity, and seemed much refreshed by the draught.
As the symptoms, however, continued, his wife became
alarmed; but she nevertheless gave him his medicine at
the stated intervals, the whole of that day, and part of
the following; during which time, however, he had eaten
nothing; but had drank freely of cider and twice of cold water.
On the evening of that day, his medical attendant found
him sitting up in bed, with his back reclined against the
wall, his arms hanging listlessly beside him; his head
bent forwards upon his breast; his shirt drenched with
blood from his nostrils. His mouth was open; his eyes were
staring, jell and turgid; the vessels of the aduna congested,
and the pupils dilated. He had passed his senses impre-
cisely. He complained of pain in the right hypochondrium,
which was increased by pressure; his pulse was 170, full, bom-
boiling, and incompressible; and his respiration short and burned.
His answers to questions were incoherent. Thirty ounces
of blood were taken from the arm; he was ordered to take no more of the medicine, and instead of it, the following mixture was ordered.

\[ \text{R. Potassae Carbonatis \ 3 iv.} \]
\[ \text{Lignum Opii Sedative \ f. o.} \]
\[ \text{Aquae \ 3 iv.} \]
\[ \text{S hamm. ochl. ij majna, in effervescens impetratis, cum succi lignins, recentis ochl. amp. Itia quaque hora.} \]

The bleeding apparently relieved him; and on looking over the letter sent his admission into the institution, his medical attendant was shocked to perceive, that the sign for \text{f. o.} of structure of \text{Pholium}, was as written, that it might have been mistaken for \text{f. o.}. On inquiry this was found to be the case. Dr. Thomson's assistance was then requested. He found the poor man almost insensible, covered with a cold clammy sweat, his pulse 45, and scarcely perceptible. He was ordered to take a tablespoonful of port wine, in some arrow-root, every half hour. At nine in the evening, no improvement having taken place, a tea-

spoonful of powder of yellow Cinchona Bark was ordered to be added to each tablespoonful of the wine. On the following morning, his pulse was somewhat firmer, the pain of his side less, and in other respects he seemed better. The diarrhoea had stopped. He had taken none of the arrow-root, but had drank freely of the cider. He was still delirious, al
though at times sensible. He was ordered to continue the wine and the bark.

At 12 o'clock of this day, all the dangerous symptoms returned. He bled profusely at the nose; became insensible, and comatose; the pulse, which had again become hard and thready, was 84. He was ordained to discontinue the wine, to have his bowels opened by a dose of Castor oil, and the following mixture to be taken, in a state of effervescence after its operation, and repeated every third hour.

Potassa Carbonate. 3iv
Infus. Aconitsi 3iv. Sta. per primum.

In the evening the patient was more sensible, and the pulse although rapid, was softer than in the morning. He had passed a dark green offensive stool; his skin was dry, and he complained of headache; the bow, however, and the face and neck were moist and clammy. He was ordered to continue the fever medicine, and to take a little wine and water in the intervals; the object being to support the strength, until all the Calomel should be thrown out of the system. He was also ordered an anodyne, consisting of 12 xxx of Spirit. Opii, 3 of Ether. Jalap, and 3 of Opium. Cumolone. Next morning, it was found that he had enjoyed three hours sound sleep, was much refreshed, and apparently in every respect improved. He was directed to continue the medicine and to take a dose of Castor oil. Having quenched
sections also respecting the necessity of adhering to demulcent diet, Dr. Thomson left him with a more satisfied mind than he had previously been able to do; but this gratification was soon destroyed by finding when he repeated his visit at 2 o'clock in the afternoon, that all the bad symptoms had returned. The pupils were dilated, the countenance was distorted by an almost maniacal state, and the mind wandered in wild delirium. His wife stated that the Castor oil had not operated, and that he had refused both meat and drink since he took it; that a short time before the visit, he had coughed up a large quantity of fluid blood; and that the epistaxis had also returned. He showed a quantity of coagula, which were cannified, as if molded in the trachea and bronchial branches. Dr. Thomson dreaded the loss of blood, and conjectured that there was an infarction of the cellular tissue of the lungs, and probably a rupture of some small vessels; and he was the more disposed to believe that such was the case from the livid state of the lips. His feet were ordered to be put into hot water, and prescribed pills of Acetate of Lead and Opium, and a Blisten to the right hypochondrium, where he still suffered great pain. An evaporating lotion was also directed to be applied to the head.

The blister was not applied, but he felt relieved; the pupil was less dilated, and the pulse was diminished,
when he was seen in the evening. The bleeding had ceased, but the pain in the side had increased. He had no sleep in this night, and his strength was becoming less; when he was seen on the following morning, he was unconscious; his mouth was open from the dropping of the lower jaw; and the pulse was scarcely perceptible. His arm when raised, fell powerless by his side; his stools were passing involuntarily; the skin was sallow; and the whole surface was bedewed with a clammy sweat. He continued in this condition during the whole of the day, and in the evening, died without a struggle.

Sectio Cadaveris—24 hours after death.

The body was that of a principal well-made man, with a profusion of hair on his breast. The whole of the surface was strikingly yellow; the teeth were closely pressed together; the pupils of the eyes thrown upwards; and the countenance was expressive of great suffering.

The skull-cap adhered very firmly, and was extremely thick, measuring fully one-third of an inch in thickness. The dura mater was natural, but it adhered very firmly to the bone; it was not at all congested. The arachnoid was opaque in several parts; and when elevated by blowing air under it, it displayed the vessels perfectly turgid with bright arterial blood. In other respects, the meninges were healthy, as was also the substance of the brain and spinal
cord. The large arteries of the cerebrum were completely empty; and the choroid plexus unusually pale. The neck was injected with fluid venous blood, as was also the trachea and its mucous membrane. The muscles of the thorax were particularly destitute of blood; the fat covering them was abundant, and the connecting cellular tissue was very easily lacerated. The vessels of the mediastinum, and those of the costal and pulmonary pleura were much congested. Each pleural sac contained about a pint of serous lymph, but the lungs were free from adhesions, either recent or old. The lower lobes on both sides were greatly emaciated; and in some places, they presented the appearance of pulmonary apoplexy; but although they were thus gorged, they floated, when removed from the body and placed in water. The pericardium contained about one ounce and a half of clear lymph. The heart was large, flaccid, easily lacerated, and of a dark colour, and adhered to the pericardia when torn by it. The coronary vessels were empty, as were all the cavities of the heart, except the left ventricle, which contained a fluid coagulum, intermixed with the auriculo-ventricular valve. The lining membrane of the aorta was red and congested.

On opening the abdomen, the peritoneum was found to be healthy; the spleen large but firm; and the pancreas, bladder, and kidneys, healthy. The liver was larger than usual,
and contained several granulated tubercles; the gall-bladder was
tinged with bile. On cutting into the liver, it presented a curious
appearance, namely, small triangular points, surrounded by
greenish-coloured bands or lines. The veins were tinged with
black-blood. Some of the masses seemed to be passing into
suppuration. On opening the stomach and lifting up the oes
testinal canal, the mucous membrane was natural, as far
as the colon, where it presented a slily appearance, mixed
with granous blood. The blood in the vena cava was fluid.

XVI.

Mr. Leroy des Barnes has reported to the academy of Medicine, the
following case of poisoning by Colchicum.

A female, aged 57, suffered from pain in the epigastrium.

Her medical attendant prescribed for her 30 grammes (an ounce) of
trituration of Colchicum, of which she was to take a teaspoonful night
and morning in a simple julep of farina. Before commencing this
treatment, she was directed to take a purgative draught, composed
of syrup of rhubarb and sulphate of soda. By some unfortunate mis-
state, the whole of the colchicum was swallowed instead of this
draught. In five minutes she felt severe pain in the stomach and
bowels, and there was great anxiety; in this state she was seen by
Mr. des Barnes. Her face was pale, the features contracted, and the
eyes sunk. Severe pain in the abdomen was very severe. She vomited
once a glairy, mucous-like matter, and this was followed by several liquid,
dark-coloured stools, accompanied by violent colic. The patient con-


explained of a sense of suffocation and strangulation. The pulse was weak, and only fifty in the minute; the extremities were cold; vision was not affected, and the intellect was clear. There was neither headache, vomiting, thirst, nor any ulcer of the mouth and fauces. Small doses of tincture amnestic were administered, these brought away a yellowish coloured liquid, having a spirituous odour like that of the tincture of Belladonna. Vomiting was promoted by draughts of warm water, and the patient then took the iodinised water recommended by M. Bouchardot; this appeared to relieve the cramps in the stomach and the colicky pains.

In about an hour the dose of iodinised water was repeated.

In two hours, the patient still continued to suffer from incessant vomiting, with cramps in the muscles of the legs and arms. The extremities were cold, and the hands and arms had a livid hue. Irritations were employed, stimulating poultices were applied to the abdomen, and eversions to the feet. The patient still continued to take occasional doses of the iodinised water. Thirteen hours after the poison had been swallowed, the woman was suffering from great prostration of strength, vomiting, diarrhoea, cramps in the limbs, twitchings of the tendons, great agitation, and severe pain in the abdomen. The pulse was 65. Only a few drops of urine had been passed.

On the following day, the symptoms continued, the pulse having risen to 90. The heat of the body was more equally distributed; the tongue was dry; thirst intense; and there was entire suppression of
wine. The cramps and convulsive motions of the limbs, with the
flush of strangulation, had disappeared.

Leeches were applied to the abdomen, and emollient medicines
prescribed.

In the afternoon, the patient had considerably improved, and
urine was freely permitted. On the fifth day the fever had dis-
appeared, but there was still some diarrhea.

In the course of a week or ten days, the patient had entirely
recovered.

Remarks on the preceding case of Poisoning
with Colchicum.

It will be seen from the preceding cases, that the poisonous
action of Colchicum induces more to Acrid than to Gastrointestinal
properties.

Colic, griping, Diarrhoea and Diuresis, slow and almost
imperceptible pulse, and great prostration of strength, are re-
presented as having occurred in all of them, whilst only
in three was there any distinct manifestation of an action
upon the nervous system.

In three cases the pupils were remarked to be dilated, in
one, contracted.
In the majority of cases, suppression of urine existed, but
in one, diuresis was present from the time of poisoning to that
of death, a period of six weeks.

In the case recorded by Dr. Cullen, the effects on the
nervous system were well marked. Convulsions, succeeded
by complete stupor, and paralysis were present.

The post-mortem appearances were in general, redness
and inflammation of the intestinal canal, but in the cases
mentioned by Chevalier and Caiffe, no marked appearances ex-
isted.

I have selected from among all the cases of poisoning
by Salicarium which I could find, those which seemed best
suited to convey the most correct ideas regarding its action; be-
cause I believe that opinion to be most correct, which
is founded on a careful survey of numerous facts. Considerable
space therefore has been occupied in so doing, but I trust that
the studies pursued of them will alone for their great length.
Treatment of cases of poisoning with Colchicum.

Mr. Bouchardat recommended the use of Sodurnetted Water in such cases. It is prepared by dissolving six grains of Sodum of Phosphoric and three grains of Sodum in a pint of water, and is in fact a weak preparation of the Liquor Sodii Phosphorici compotitus of the London Pharmacopoeia.

Not having been able to procure Mr. Bouchardat's original paper on the subject, I am ignorant of the principle on which he recommends its use. In the last case of poisoning which I have recorded, and in which the Sodurnetted Water was employed, it seems to have been of no use whatever.

The proper treatment, in cases of poisoning by Colchicum, consists in promoting evacuations upwards and downwards to expel the remains of the poison, and then using large ointments with counter-irritation of the abdomen, or the application of leeches. (Chirurgie)
Therapeutical Action of Colchicum.

I. As a Diuretic.

In 1783 - Baron Stoeck of Vienna first introduced Colchicum as a diuretic, and in a book which he published shortly afterwards, numerous cases of cure by the use of Colchicum were recorded by him.

He relates two cases of dropsy, succeeding to hæmorrhage, which were completely cured in 14 days, and a case of Asthma and Hæmorrhage in an old man, both of which diseases were entirely removed in a week.

The preparation which he used was the Argental Colchicum, and he directs a draught to be taken for a dose, this quantity being gradually increased to two ounces daily.

He briefly states the physiological action of Colchicum, according to his observations, in the following sentence: "It disposes phlegm, and increases expectoration and urine."

It is needless occupying space, by enumerating more of the cases which were published by Stoeck, but having in justice to him, as the original introducer of Colchicum, noticed some of them, I may also state, as another reason for not going further from him, that, although considered a great physician, the Baron cannot be regarded as a correct reporter of his own cases, for his contemporary Aken, says, that "out of thirty-six cases of cancer, reported by Stoeck,
to have been caused by the use of Rembruck, it was found on inquiry, that thirty of them had died, and that the remaining six still laboured under the disease.

Thus, although we can place little reliance upon Stock's cases, there can be no doubt from the subsequent confirmation of experience, that there was good foundation for much of what he stated. Notwithstanding the exaggerations imputed to him, Stock has at all events the merit of bringing into notice, many medicines which have since found places in our pharmacopoeia, and which in many instances, have proved valuable additions to the materia medica.

Mr. Planchon mentions several cases occurring in his practice, in which, Asthma, Hydro-thorax, Ascites and Anasarca, were completely removed by the use of Calomel.

At the present time, Calomel, Strychnia, is little employed as a diuretic, as there is hardly any mention of it made in the works of authors of the present day.

Dr. Mason Good states that it is useful in Diaphyse, and that it ought to rank next to Strychnia, as a diuretic in that disease.

He exaggerates the acid properties of the drug, however, in the following passage:

"Even while cutting the roots, the acid vapour that escapes, irritates the nostrils and fauces, and the substance held in the fingers, or applied to the tip of the tongue, so completely exalts the sensorial power, that a numbness or torpitude is
produced in either organ, and continues for a long time after wards.

It is needless to say that there is not the least foundation for such averments.

Dr. Craigie, one of the few who mention its use in dyspepsia, states that it is uncertain in its effects.

That it has diuretic properties, however, is undoubted, and its power of causing increased secretion of urine, seems to point it out as a proper stimulant to the kidneys, in cases of suppression of urine, when a fatal result from accumulation of urine in the blood, is always to be apprehended.

In the case of a boy who had almost complete suppression of urine for three days, the whole quantity passed during that time, not exceeding an ounce in all, and where Digitalis, Spirits Aetherei Intici, Acetate of Arsenic, and sublimate had produced no effect, Dr. D. MacLagan used the Acetum Pollici with complete success.

In the acute states of dyspepsia, it is best given with mercury in powder, but in asthenic cases, it is most advantageously conjoined with the warmer diuretics, with tonic infusions, with preparations containing Camphor or Ch从容ia, or with large doses of the alkaline subcarbonates, particularly in the County of Glasgow.
II. As a Sedative.

In 1820, Mr. Haden published a small pamphlet upon Colchicum, and especially takes notice of its sedative effects in inflammation.

Mr. Haden states "that in pure inflammation, if it be given so as to produce full purgative effects, Colchicum will be found to bring the pulse nearly to its natural state, from being either quick and hard or slow and full, but this action may also be produced before purging has taken place. Fevers and inflammations as removed, never require the use of tonics during convalescence; the patient indeed generally appears to be as well, as though they had never been the subjects of disease, and although it sometimes happens that a recurrence of symptoms takes place, it is in a much milder degree, and the new disorder is always immediately removed in the course of a few hours, by a very little of the same treatment."

Mr. Haden found that the tincture of Colchicum often did not produce purgative effects until forty-eight hours had elapsed, and then it was frequently very violent in its action; with the combination of a saline aperient however, he found that the beneficial sedative effects of Colchicum followed more quickly, and were equally decided as when Colchicum was given alone.

Having repeatedly found that very violent effects were produced by the tincture, he chiefly made use of the powder of the tubers, which he extensively employed in a variety of diseases, the prin-
script of which were, Acute Rheumatism, Inflammatory fever, Inflammation of Lungs, Pleura and Bronche, and in Per-oral fever.

He gives numerous cases in which Colchicum was administered in the form of powder combined generally with a saline aperient. The first case I shall quote is one of Acute Rheumatism.

"A stout laborer was suddenly seized with rigors, after working for several hours on the prin Partner. Violent fever followed; and the next day he was confined to bed, being incapable of moving his limbs in the slightest degree. Five grains of the powdered Colchicum with a couple of sulphate of Potassa were given four times a day, and two days afterwards he was found walking in the streets, and was soon quite well. Five doses of the medicine were taken."

The next two cases are of Dumbago, treated in the same manner.

"Two patients of the same age were unable to rise from their beds on account of Dumbago. One of them, a gentleman, in addition to taking Colchicum, drank plentifully of warm fluids, took the warm bath twice a day, and kept himself covered by the bedclothes; he was quite free from pain in 24 hours, and was up, and quite well in 4 days; whilst the other, a lady, although she remained in bed, and the disease had left her perfectly well in a week, yet did not use the warm bath, nor any other of the means used by the other patient. In nei-
"then of these cases were tonics required."

These last cases do not prove so much in favor of Colchicum, as in favor of the warm bath, and diaphoretic treatment; in the former of the two cases where they were used along with Colchicum, the relief was rapid, but by no means unusually so; in the latter, where no warm bath was used, the disease lasted as long under the use of Colchicum alone.

It is remarkable that Mr. Hadon should have been so successful in his use of the powder of the bulb, a preparation seldom used by other practitioners, but he seems to have employed it, not as being more active, but as being less irregular than the tincture in its action.

His statements, if confirmed, would lead us to esteem it as a remedy of remarkable antiphlogistic powers, but few practitioners are inclined to believe that it will ever supersede the use of the lancet, and other safer antiphlogistic remedies, in cases of acute inflammation.

He gives one case of Rheumonia, in which Colchicum was used with perfect success instead of Bloodletting, but nothing appears in his narrative to show that it has any advantage over Setaria of Antimony, which is more manageable, and less likely to produce unpleasant effects.

Mr. Hadon has, towards the end of his work, expressed his opinion of the action of Colchicum in the following terms—

"The sensible effects of Colchicum would appear to be, to
control the action of the heart and arteries, and indeed often to reduce that action, below that of the standard of health. This effect is often produced long before its other sensible effects are apparent, but when continued long enough, and generally before its remedial virtues are decidedly obtained, purging takes place. Sickness and vomiting accompany the purging in some instances; whilst in others, the secretion from the kidneys, or from the skin is increased, sometimes without the former symptoms being perceived. We thus find from Mr. Hales's observations, that he considered the action of Colchicum essentially sedative, whilst the purgative and diuretic effects were only incidental accompaniments. This statement of the powers of Colchicum as a sedative, is certainly over-rated, and its influence in this respect has not been realised to such an extent in the present day.

Dr. Copley, says, that the kinds of inflammation in which Colchicum may be of essential service, are those cases, in which a torpid and obstructed state of the liver is present, and then Colchicum combined with desultorium purgatives is of much use. "In cases attended by very acute pain, or by the effusion of fluids from the inflamed part, it will also be of service when judiciously combined with other means, but its action should be carefully watched, as in some constitutions, it produces most depressing, and even injurious effects."

The sedative influence of Colchicum on the circulation is also shown.
in cases of prostratual action of the heart whether from functional, or organic causes."

Dr. Lewis says, "In all inflammatory affections of the chest, and perhaps of the brain, or its investing membranes, I am convinced that bleeding may frequently be, to a certain extent, superseded by the use of Colchicums. In many diseases of the heart and large arteries, it is a most valuable medicine."

This however, should be an exaggeration of the extent to which Colchicums is applicable in inflammatory diseases.

In Fever.

The same author has recorded six cases of Contined Fever, in which Colchicums was used with complete success. In all of these considerable physiological action was manifested, such as Grees, Catarrh, and reduction of the pulse.

These however, are generally speaking, very unsatisfactory. In Fever

Dr. Wood has noticed thirty-five cases of Scrofula, successfully treated with Colchicums. In a few cases, vomiting was induced, and a considerable quantity of bile evacuated. In most cases, diarrhcea followed its use, but the most apparent phenomenon were great reduction of the pulse in frequency and force, and subsidence of the palpitation of the heart, which in young subjects was often apparent to the eye.

Dr. Smith cases were all of the purely inflammatory type. -

Dr. Lewis Jr. has seen cases of Scrofula, effectually cured by
the administration of Calomelum. He says: "In every instance where Calomelum was employed, the malady very speedily proceeded to a favourable termination; while other cases, apparently similar in their character, in which this medicine was not administered, proved by no means so satisfactory; several having terminated fatally, and the sequelae of others being exceedingly troublesome"
II. As a Diaphoretic -

Colchicum is now never employed merely to produce diaphoreisis, although there can be little doubt that its influence in this respect, is by no means inconsiderable, sweat being very often mentioned as having supervened in cases which have been treated by Colchicum.

When Colchicum is used in combination with Opium, sweaing is frequently produced and is often copious. The effect here is not to be ascribed solely to the Colchicum, nor is it always proportionate to the dose of Opium, but is probably due partially to both. Probably its good effects in some cases of Rheumatism are partly due to this diaphoretic action, and the combination of Colchicum and Opium, appears in many respects to resemble Dover's Powder, in its physiological and therapeutic action.

The two diseases in which Colchicum is now more generally employed, are Gout and Rheumatism.

Its effect in these two diseases, have not been decidedly ascribed to any one of its physiological actions, but have often been considered as being of a specific character. Instead therefore of attempting to refer it to any of the above divisions, it will be better to give its action in Gout and Rheumatism, a separate consideration.
IV. In Gout and Rheumatism —

If we are to believe that the Pain medicinable had for its basis some preparation of Calliciumus we must assign to Dr. Jones of London, the merit of having first employed the drug in this country, for the cure of Gout and Rheumatism — On the other hand, if we are to believe that the Pain medicinable does not contain Calliciumus, to Dr. Dyer and Howe, this merit belongs, he having been the first to use Calliciumus in this country under its own proper designation.

As I believe however that the former of these opinions is the correct one, it demands a notice of the introduction of this remedy into Britain, and its subsequent use there.

In 1810 — Dr. Jones of London first introduced the Pain medicinable into this country from France, and in a small pamphlet which he published in that year, he relates several cases in which he used the new drug with great benefit.

He states the following to be its mode of action —

In from six to nine hours after taking the remedy, the patient begins, however severe the paroxysm may be, to experience a diminution of pain; he generally falls into a quiet sleep, and awakes in the morning nearly, or quite free from suffering, and often begins to enjoy some returning use of the affected limb; he then commonly feels considerable comma, sometimes accompanied by vomiting and generally followed by considerable.

In the meantime the paroxysm diminishes, and on the third
or even the second day, nothing remains but a slight swelling or stiffness of the joints, which soon go off, leaving the patient in his usual state of health."

"These are the common effects," says Dr. Jones, "but there are others, as odd singular and deserving attention. Together with a diminution of pain, there is an abatement of fever, and irritation, and of the heart and arteries; the pulse is often reduced twenty strokes in a minute, and in many instances, considerably more; at the same time a moderate diaphoresis usually takes place. It very frequently acts as a powerful diuretic, and its operation in this way sometimes lasts for several days."

Though the paroxysms were removed in the majority of his cases in the above manner, Dr. Jones ascertained that the time in which this was effected varied under different circumstances. Sometimes a patient gets rid of a sharp fit the next day, in others several days may be necessary.

"In its action on the bowels, the drug medicated is extremely capricious; it usually operates in the way above described, sometimes it produces no evacuation at all, in others it produces powerfully diuretic and catarrhal, and in a few cases, has acted with considerable violence."

These variations in action did not appear to depend on the relative strength of the patients, as Dr. Jones ascertained that several weak and delicate persons took full doses without
experiencing any disturbance; whilst in some cases habits
it acts powerfully both by vomiting and by stool, although
only half a dose was taken.
This appears rather be referable to some peculiarity of
constitution.
It was equally uncertain as the time required to produce
these effects. It generally began to operate in eight or
ten hours after being taken, sometimes not till twenty-four
or forty-eight hours had elapsed, and in some rare cases, not
till after three days.
Dr. Jones concludes his remarks on the action of this
medicine by stating that "for the most part, the Eau medicinale
even where it has been more violent than was expected, has
not been followed by any ill consequences."
In 1815 Mr. Want published his conviction of the identity
of the basis of the Eau medicinale, and Colchicum autumnale.
He successively used the meuntrum of Distilled Spirit, Wine,
and Water, and succeeded in forming a preparation with
Spanish Wine, differing in no respect from the Eau medicinale.
I believe Mr. Want to have been the first person
to draw attention to the probable identity of these two medi-
cines.
The publication of this paper by Mr. Want, paved the way
for a controversy between him and Dr. Sutton, the latter of
whom very much doubted that Mr. Want had discovered the
plant, whose active properties were the basis of the French
secure, and he endeavored to show that M. Want had
only reported cases, cured by a medicine well-known at the
time, and that the power of this remedy merely consisted
in its cathartic properties, and stated that many purgatives
then known, would have the same effect; but M. Wantably
described this in a subsequent paper, in which he published
a case of Pert, cured by Colchicum, in which no purging had
been resorted.

In 1816, Sir Edward Home, and Sir Charles Liddlemore,
both wrote upon Pert, the former advocating the identity of
the two medicines with Colchicum, the latter alleging it.
Sir E. Home quotes himself as a case in which the two medicines
had acted powerfully, and effectively in restraining the
Pert fever.

Under the influence of a violent fit of Pert, Sir Edward took
50 drops of the Digitalis plant. The pain was intense, and he
felt chill; in two hours, he became a little hot and thirsty;
in three hours the pain was considerably diminished; in seven hours
he had a confined motion of the bowels; nausea came on, and
the pulse naturally at 80, lowered to 60, and intermittent.
In ten hours, the nausea had gone off, he remained languid,
his pulse was 70; he had some appetite. The following morning,
the pulse was 80, and he was quite well.
Sixty drops of the primus Colchici were given to a man labouring
under Gout, and whose paroxysms were generally of three or four weeks' duration. His age was 60. When the medicine was exhibited, his pulse was 115. In half an hour, he had slight nausea which soon went off. In five hours a profuse perspiration came on, and the pain of the Gout entirely ceased, leaving a soreness in the part affected. In twelve hours, his bowels were gently moved, his pulse 105, and irregular. In fourteen hours, his bowels were again acted on. In nineteen hours, his pulse was 92, and natural. In thirty-eight hours, he was quite well, and continued so.

From his observations on the use of Colchicum in Gout, Sir Everard concluded that the effect of the remedy always was to reduce the pulse ten, or twenty beats in a minute, and that this effect generally took place, about twelve hours after the administration of the medicine.

Sir Charles Loudon denies that the basis of the Eau medicinale and Colchicum are identical, and he gives his opinion that the Eau medicinale is a dangerous remedy and one which has been much too highly praised by Dr. Pratt; he however does not deny that it has some influence on Gout, as he states, that on the first trial of the medicine, the paroxysm is removed, and that, as if by a charm, and that relief is often obtained without any sensible effect upon the stomach or exciting organs; and that the curative power of the remedy lessen
gradually on repetition, and with many persons becomes entirely lost.

The capricious action of this medicine appears to him to be the chief objection to its use.

He states a case, in which the patient had taken several bottles in a few weeks, without any effect being produced, and another, where the contents of a single bottle so paralysed the stomach, that for many days it was scarcely sensible to the strongest stimulants; the patient was recovered with much difficulty, and remained for a long time in a state of serious debility.

He says "when the Eau medicinale does not immediately debilitate by the violence of its effects, it often leaves behind an impaired condition of the nervous system, so that the head is affected with frequent giddiness, the stomach with weakened digestive power, and frequent sensations of sinking and vacuity; the limbs, and especially the parts affected in the paroxysm, suffer for many weeks with trembling, numbness, weakness, and coldness, and very commonly with teatious oedema; these symptoms appearing variously in different individuals. It tends also to render the bowels inactive, to diminish the alimentary secretions, and materially to weaken the functions of the liver. In the general character of the medicine it may with truth be said, that sooner or later, in proportion as it is freely employed, it leads to a broken state of health."
Mr. Bung relates a case of poisoning by the Dau medicinal, in a person who had been accustomed to use it for the relief of pain. Half a bottle was taken; it operated violently as an emetic, cathartic and sedative. Next day the pain had disappeared, but a violent pain had seized the patient in the pit of the stomach; this increased during the night when it became excessive, alternately affecting the stomach and bowels. On the second day, the pain gradually abated, but in the evening, bilious vomiting came on, and on the third day, he died.

These effects observed in the Dau medicinal, show it to have been a preparation very analogous to Colchicum in its general effects, but its uncertainty and violence correspond more with the accounts which are generally given of the action of Bertramum Album, and it is not improbable that it may have contained the active part of both these drugs.

In modern practice, however, the Dau medicinal has been completely superseded by the ordinary officinal preparations of Colchicum, and the little bottles in which it was sold are rarely met with except as preparations in a museum.

There can be no doubt from the results of modern experience of the value of Colchicum as a remedy, in cases of Pain and Rheumatism, but it cannot be expected that one
Who has had no opportunity of treating cases of these diseases, should pretend to offer remarks on the practical employment of any medicine for their cure.—I must therefore rest satisfied with briefly reporting the published experience of practical men.

1. Gout—

It appears probable that Colchicum in the form of tincture, was employed even in ancient times in the cure of Gout; now, it is in very general use.

Its action is very frequently said to be specific, but as has been previously remarked, this expression seems to imply nothing more than that its effects are energetic and marked; for the term "specific" as applied to a medicine, in strict propriety means one which cures a disease, without producing any distinct or obvious physiological action, in virtue of which, it may be supposed to lead to the cure of the disorder; but it appears from the concurrent testimony of many practical men, that Colchicum seldom cures the paroxysm of Gout, without producing some distinct physiological action. To use the words of Dr. Barlow, "a full dose of this medicine, purges strongly, allays pain, and lowers the pulse,—its operation seems to combine the several advantages of Bloodletting, Purging, and the production of Sedative Action."

Dr. Christian has stated, that Colchicum seldom acts therapeutically, before producing a slight degree of that physiological
action, indicated by Diarrhoea, Colic pains and Mental Headache, which in a higher degree constitutes it a poison.

Dr. Gardner, however, states that he believes the action of Calomel to be specific, and denies the necessity of its producing any physiological effects, before relief is obtained; to use his own words, "Calomel never more effectually relieves the patient than when it acts silently and peacefully, without producing any evacuation whatever, or in any way disturbing the patient’s comfort and ease."

The rarity of the occurrence of Constipation has prevented me from deciding by means of statistics or otherwise, whether or not it is necessary that some physiological action should accompany the therapeutic effects of this drug. I have found means of doing so, however, with regard to Acanthospermum, to the results of which inquiry I shall immediately refer.

Dr. Robertson states that while Calomel acts freely on the bowels, and especially on the duodenum, it possesses a specific action on the white fibrous tissues; it is to this property, he says, that Calomel owes its power over Constipation, and certain affections of the heart, and every disease involving debility or inflammatory excitement, quite independently of its other effects upon the system.

Dr. Todd states with regard to Constipation, that whenever Hansen or Seringe are induced, during the administration of Calomel...
in those diseases, the dose of the medicine should be diminished, or altogether abandoned.

It has frequently been objected to the use of Colchicum, that it confirms the Gouty constitution in the systems of those who have used it.

As Gout generally occurs in persons, who have the disease confirmed in their constitutions, either by having inherited it, or by having acquired it by full living, Colchicum has got the credit of confirming the Gout in their systems, when that is in reality due to the inherited or acquired Gouty habit.

With regard to this, Dr. Holland writes: "A suspicion has existed, that though capable of relieving the present paroxysm, Colchicum renders the attacks of the disorder more frequent.

On my experience, however, I believe this opinion to be justified only where the medicine has been used imperfectly, or without other precautions, which are more or less essential to its success." On the other hand, Dr. Copesland says, "Colchicum, when used merely with the view of preventing or suddenly curing the paroxysm, and without reference to the removal of the morbid condition of which it is the external manifestation, is liable to many objections. The consequences of having frequent recurrences, to it, vary in different constitutions, and with the habits and mode of living of the patient, but they commonly are, a much more frequent return of the fit, or of the symptoms indicating its approach; impaired nervous power; debility of
the digestive organs; torpor and irregularity of the biliary functions, and of the bowels; headaches, and a variety of symptoms referable to the encephalan. Besides this he has met with instances of Hypochondriasis, melancholia, mental delusions amounting to insanity, Paralysis, and Angina pectoris evidently arising from this.

Were all physicians agreed upon this point, Colchicum would require to be considered in a far different light from that in which it is at present. Few men have met with such untoward results in the use of this medicine as Dr. Copland, and we should believe, at least hope that they are considerably exaggerated.

With regard to the application of Colchicum for the relief of the morbid condition of which Gout consists, decides its use for the mere alleviation or prevention of the paroxysm, Dr. Robertson states that "the action of Colchicum must be said to be more decided and greater on the local manifestation of Gout, and the inflammatory character of its paroxysm, than on the constitutional condition on which Gout depends, and of which the localised ailment is only a form and development."

Dr. Holland, however, is more favourable to its further application; he says, "I can scarcely doubt the expediency of carrying the employment of Colchicum beyond the mere relief to the local inflammation of the disease. The remedy with
due care, may be made preventive, as well as curative of Gout, and according to my experience with so little safety to the patient."

"We may reasonably then, if this view be just, extend to its use as a medicine the remark before made - that too exclusive attention is given to the external part of the disease; and the value of the remedy in the constitutional form of the disorder, too little regarded. Larger experience is making a gradual change in this respect; but there is still a rapidness and timidity in its application beyond the mere fit of Gout, which is not warranted by any ascertained risk."

I offer no further remarks here, both on account of the high testimony I have adduced, on the various sides of the question, and also from the fact before stated, that the rare occurrence of Gout in this place, has prevented my making observations on the nature and treatment of the disease.

Besides its action before stated, Colchicum appears to act both as a diuretic and diaphoretic. Its chief action appears to be however, lowering the pulse, and relieving pain, and therefore, its chief effect is that of a sedative and anodyne. Bearing in mind however, the tendency to the formation of Lactic acid in Gouty subjects, and the effect of Colchicum in altering the Urinary secretion, it seems more than likely, that partly its effects are due to changes which it induces in the chemical quality of the blood, and the secretions derived from it.
All the preparations of Colchicum have been employed in Gout and Rheumatism, and have been administered in various ways. Dr. Watson recommends forty to sixty minims of the tincture of Colchicum in a saline draught at bedtime, and a half-drachm more in a warm black draught the next morning. More commonly, however, the simple tincture of the seeds is employed. This is recommended by Dr. Barlow, as being more uniform in strength, and more certain in operation.

It may be administered in full doses, i.e. 30 to 30 minims, and repeated at intervals till the pain has abated, or till some of its physiological actions, such as purging or diuretics, manifest themselves.

2 Dr: Rheumatism.

Colchicum has been employed upon much the same principle as in Gout, and from the similarity of the two diseases, we would be led to expect much the same results from its use. It does not appear that its curative powers are in general manifested until it has fairly produced some of its constitutional effects, and when these are fairly shown, as, for example, when it produces some amount of irritation of the bowels, the disease frequently yields with great rapidity. In Dr. Watson's words, "the preparations of Colchicum" have sometimes, whether resection has been premised or not, an almost magical effect in quelling the disease. Frequently when most successful though that is
by no means a necessary condition of their success; they exercise some marked influence upon the stomach and bowels. Colchicum is very apt to occasion deadly nausea and vomiting, griping and diarrhoea, and when these consequences ensue from its use, the inflammation of the joints often subsides entirely. At any rate, if the Rheumatism does not give way when the stomach and bowels become thus affected, you may be certain that to push the Colchicum further would be useless.

In an interesting memoir, Dr. P. Monneret gives the details of treatment of 25 cases of articular Rheumatism, treated by Colchicum in the male.

The greater number of his patients took from one to four drachms, in one, two, or four divided doses in the twenty-four hours. One drachm was the smallest dose of the tincture ever administered, and several of the patients took it for seven, some for ten, and others for thirteen days. In eight of the patients, the diminution, or even total disappearance of the symptoms of Rheumatism, coincided with the exhibition of the Colchicum. In these cases, the disease was either of some days duration, and was scarcely accompanied with febrile symptoms, and then ended in twelve or fourteen days, or it was completely chronic. In either case, the powerful effects produced by the Colchicum on the bowels, sufficed to suspend or expel the disease; the improvement always coincided with the diarrhoea.

In most instances, diarrhoea was the prevailing feature,
although in some rare cases, retching and vomiting without any
vomiting, were induced.

The discharges were almost always bilious, or evidently mixed
with bile.

The motions were mostly passed with acute suffering, violent colic
pains, tenesmus, and scalding of the anus.

Vomiting was frequently induced by a smaller dose of the two
times, than from two to four grains in a draught.

In order to corroborate the idea that Pelletier's in genera-
and produces some physiological effect before its therapeutic
action is manifested, Thane prepared the following table
of cases of Acute Cholera Morbus, treated by Pelletier's, in which
will be seen the effects of this medicine in 17 cases.
<table>
<thead>
<tr>
<th>No.</th>
<th>Duration of Disease</th>
<th>Treatment</th>
<th>Physiological Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 51</td>
<td>12 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>2. 50</td>
<td>5 Months</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Peeling - Rancid - Intert</td>
</tr>
<tr>
<td>3. 39</td>
<td>3 Weeks</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>4. 70</td>
<td>6 Months</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>5. 32</td>
<td>21 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>6. 17</td>
<td>14 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>7. 50</td>
<td>8 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>8. 52</td>
<td>8 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>9. 52</td>
<td>21 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>10. 8</td>
<td>25 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>11. 1</td>
<td>2 Months</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>12. 1</td>
<td>19 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>13. 1</td>
<td>14 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>14. 1</td>
<td>6 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>15. 39</td>
<td>9 Months</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>16. 39</td>
<td>13 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>17. 39</td>
<td>6 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
<tr>
<td>18. 39</td>
<td>14 Days</td>
<td>Calcarea &amp; Aromatic Pois</td>
<td>Diarrhea - Rancid - Intert</td>
</tr>
</tbody>
</table>

+ From the Journal of the Royal Infirmary - Edinburgh +
+ From D. Loudon - London Medical Gazette - vol 85 +
+ Dublin Medical Transactions - 1836 +
The preceding table must necessarily be more or less imperfect, from the incomplete manner in which the cases have been reported, still it is sufficient to show that the physiological effects of Pellicium are the almost certain accompaniments of its therapeutical action, and it would thus appear that in Acute Cerebration, Pellicium produces its good effects, partly by its evacuant, and partly by its sedative influence.

Beyond this, however, I believe that Pellicium exerts a great influence in the treatment of this disease, by the power it has of altering the Renal secretion.

In Acute Cerebration, Dr. Parrot states that the blood contains no more Uric acid than in health; this being a very minute quantity. I am inclined to believe, however, that in all cases of Acute Cerebration, both Urea and Uric acid are present in the blood, in increased quantity.

In the cases which I am about to relate, and which fell under my own observation, I shall endeavour to prove that such is the case, and to show, from the analyses of blood and urine, which were both before and after the exhibition of Pellicium, that the remedial agency of this medicine is due partly at least to its power of eliminating Urea and Uric acid from the blood, and increasing their quantity in the urine.

The first case was that of a girl under Dr. Wright's care in the Royal Infirmary.

In the 19th of October, a small quantity of blood was withdrawn,
analysed, and found to contain —

In 1000 parts of Blood — — — 0.507 Urea — — — — 0.854 Uric acid — — 
The urine was examined at the same time. It contained

<table>
<thead>
<tr>
<th>Total Solids</th>
<th>28.588</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>971.432</td>
</tr>
<tr>
<td>Urea</td>
<td>10.496</td>
</tr>
<tr>
<td>Uric acid</td>
<td>0.257</td>
</tr>
<tr>
<td>Inorganic salts</td>
<td>7.2161</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>10.354</td>
</tr>
</tbody>
</table>

1000.000

Calcium, in combination with Nitrate of Ammonia was then administered.

The urine was again examined on the 18th October, being the 5th day. It was found to contain —

<table>
<thead>
<tr>
<th>Total Solids</th>
<th>31.454</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>968.541</td>
</tr>
<tr>
<td>Urea</td>
<td>12.312</td>
</tr>
<tr>
<td>Uric acid</td>
<td>0.421</td>
</tr>
<tr>
<td>Inorganic salts</td>
<td>8.231</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>10.296</td>
</tr>
</tbody>
</table>

1000.000
The urine was again examined on the 22nd October, or 9th day, 132. It contained:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Solids</td>
<td>95.613</td>
</tr>
<tr>
<td>Water</td>
<td>96.387</td>
</tr>
<tr>
<td>Urea</td>
<td>13.984</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>0.598</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>9.201</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>11.630</td>
</tr>
</tbody>
</table>

1000.000.

After 12 days constant use of the (Dolichium), a small quantity of blood was poured for examination. Now, however, not the slightest trace of either Urea or Uric acid could be detected in so large a quantity of blood as 9500 gms.

The urine was examined at the same time, and was found to contain:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Solids</td>
<td>34.554</td>
</tr>
<tr>
<td>Water</td>
<td>96.246</td>
</tr>
<tr>
<td>Urea</td>
<td>11.561</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>0.737</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>9.649</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>9.607</td>
</tr>
</tbody>
</table>

1000.000.
The Calomelium being still continued, the urine was again examined on the 18th day and found to contain:

<table>
<thead>
<tr>
<th>Total Solids</th>
<th>38.128</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>93.1872</td>
</tr>
<tr>
<td>Urea</td>
<td>17.635</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>1.034</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>9.999</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>9.450</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.000</strong></td>
</tr>
</tbody>
</table>

The second case to which I am about to refer, was treated by myself in the new London Dispensary. I had only an opportunity of examining the blood in this case, once, namely, before Calomelium was taken. It then contained:

- In 1000 parts: 1.416 Urea.
- 1.691 Uric Acid.

Before taking Calomelium, the urine contained:

<table>
<thead>
<tr>
<th>Total Solids</th>
<th>23.479</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>97.521</td>
</tr>
<tr>
<td>Urea</td>
<td>6.358</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>0.097</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>7.333</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>9.691</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.000</strong></td>
</tr>
</tbody>
</table>
The urine was again examined on the 4th, 9th, and 13th days respectively and contained:

<table>
<thead>
<tr>
<th></th>
<th>On 4th day</th>
<th>On 9th day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total solids</strong></td>
<td>24.538</td>
<td>26.322</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>975.662</td>
<td>973.678</td>
</tr>
<tr>
<td><strong>Urea</strong></td>
<td>9.103</td>
<td>12.981</td>
</tr>
<tr>
<td><strong>Uric acid</strong></td>
<td>0.231</td>
<td>0.497</td>
</tr>
<tr>
<td><strong>Inorganic salts</strong></td>
<td>8.693</td>
<td>9.200</td>
</tr>
<tr>
<td><strong>Organic matter</strong></td>
<td>6.511</td>
<td>3.444</td>
</tr>
</tbody>
</table>

On 13th day:

<table>
<thead>
<tr>
<th></th>
<th>27.466</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total solids</strong></td>
<td>27.466</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>972.534</td>
</tr>
<tr>
<td><strong>Urea</strong></td>
<td>16.824</td>
</tr>
<tr>
<td><strong>Uric acid</strong></td>
<td>0.936</td>
</tr>
<tr>
<td><strong>Inorganic salts</strong></td>
<td>7.203</td>
</tr>
<tr>
<td><strong>Organic matter</strong></td>
<td>2.503</td>
</tr>
</tbody>
</table>

These are the analyses of two very favourable cases, in which will be seen, that the urea and uric acid are increased, in proportion to the time that the medicine is continued. I have selected these two cases from many others, on account of their showing the
increase more gradually. In all the cases however, in which I have analyzed the urine, the great increase was distinctly marked, although perhaps not in so regular proportion.

One other case I should wish to mention, in which the Urea and Uric acid, although increased after a few days use of the medicine, did not continue to do so subsequently, in the same proportion.

<table>
<thead>
<tr>
<th>Before taking Colchicum.</th>
<th>On 5th day.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Solids</strong></td>
<td>25.636</td>
</tr>
<tr>
<td>Water</td>
<td>974.364</td>
</tr>
<tr>
<td>Urea</td>
<td>7.684</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>.129</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>8.421</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>9.402</td>
</tr>
<tr>
<td>1000.000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On 6th day.</th>
<th>On 10th day.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Solids</strong></td>
<td>27.907</td>
</tr>
<tr>
<td>Water</td>
<td>972.093</td>
</tr>
<tr>
<td>Urea</td>
<td>15.680</td>
</tr>
<tr>
<td>Uric acid</td>
<td>.570</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>6.500</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>5.177</td>
</tr>
<tr>
<td>1000.000</td>
<td>1000.000</td>
</tr>
</tbody>
</table>

These analyses will show to what extent Colchicum will alter...
the Axillary secretion, by supplying it when deficient of its normal constituents - urea and uric acid - from the blood.

I am inclined from all this to believe, that this property of Colchicum, its remedial action is partly to be referred.

Further analyses of the blood may however be thought necessary to substantiate what I have stated, but neither time nor opportunity have subsequently afforded me means for this purpose.

The thirteen analyses of the urine, recorded above, are only a few selected from many others made by myself, and were affected according to Berquelet's method.

Colchicum has been employed in all forms of the disease, but it appears to be more particularly useful in Arthritic Rheumatism.

Dr. Wood's words "on wishes and our expectations from Colchicum are often doomed to be defeated. I believe that in proportion as the synovial symptoms preponderate, or mix themselves distinctly with the fibrous, in proportion as the disease approaches in its character to Gout, you may expect to be successful with Colchicum. Large doses are not requisite; twenty minimi of the tincture or the wine may be given every six hours, until some relief is obtained; or a grain of the inspissated juice, or of the acetic extract of Colchicum every four hours. Under this treatment the disease sometimes vanishes within three or four days; the medicine producing sickness and purging, and the Rheumatism or the Rheumatic Gout rapidly declining. Occasional
usually the same favourable event takes place, although there has been no disturbance of the stomach and bowels.

The cases in which Phleumium appears to me to be more pre-eminently useful, are those in which the disease attacks the joints, and is of an erratic character, i.e. suddenly disappearing from one joint, and as suddenly appearing in another; these Phleumium cases, in which the heart and other internal organs are chiefly affected, and probably, if the active operation of Phleumium is secured early, these formidable secondary diseases are less likely to occur.
Use of Calcicium in Other Diseases

I. Urticaria

In a case of Urticaria which occurred in the practice of Dr. Scott of this city, the density of the urine was found to be very low, being about 1010. Suspecting that this might be occasioned by diseased kidneys, Dr. Scott examined the urine, but could not detect in it the presence of albumen; he accordingly sent it to Dr. Douglas Maclagan for more rigid examination.

"The urine was the mornings; the quantity about ten omees: it was of a pale straw colour, transparent, and left no deposit on standing.

It was analysed by Mr. Berkeley's process, by which the amount of Water, Urrea, Uric acid, and Inorganic Solids are determined.

The results obtained from this urine, were the following,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urrea</td>
<td>6.91</td>
</tr>
<tr>
<td>Uric acid</td>
<td>0.05</td>
</tr>
<tr>
<td>Inorganic Solids</td>
<td>12.03</td>
</tr>
<tr>
<td>Organic matter and Water</td>
<td>981.01</td>
</tr>
<tr>
<td>Total</td>
<td>1000.00</td>
</tr>
</tbody>
</table>

It appeared then, that the chief peculiarity in this case, was a deficiency of Urrea and Uric acid. It was then proposed that
Cathartics should be tried, which was accordingly done. A fortnight after, another sample of the urine was prepared and examined. Its density was 1029.4. It was found to contain-

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea</td>
<td>20.36</td>
</tr>
<tr>
<td>Uric acid</td>
<td>0.50</td>
</tr>
<tr>
<td>Inorganic salts</td>
<td>12.72</td>
</tr>
<tr>
<td>Organic matter and water</td>
<td>986.42</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000.00</strong></td>
</tr>
</tbody>
</table>

Here then it will be seen that the physiological action of Cathartics was well marked. The Urea was more than tripled in its amount, and raised above the normal standard. The increase of Uric Acid was in a tenfold ratio, whilst the other inorganic constituents and water suffered a corresponding diminution; the inorganic salts remaining nearly as before.

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II. Orvigo.

Dr. Elliotson gives the case of a man labouring under this disease in its most intractable form, to whom half an ounce of the urine Cathartics was administered three times daily. This the patient took for three weeks, at the end of which time he was completely cured.

Cathartics would seem to answer well in some cases of this disease, where the urine is of low specific gravity.
I. Hysteria -

Mr. Raven relates the case of a young woman who was thrown into strong hysterical convulsions, by seeing the death of a relation. She had been treated by phlebotomy, castor oil, and calomel with but without relief. She was admitted under the care of Dr. Alderson, who, having lately seen the good effects of Chloricinum in severe cases of Chorea, was induced to try it on her.

Thirty drops of the tincture were taken every eight hours. In a few days, the convulsions left her and did not return.

II. Chorea -

Cases are on record of three children having been relieved from Chorea in three or four days, by using from ten to twenty drops of tincture Chloricinum daily.
Effects of Colchicum on the Genito-Urinary System.

I. As an Oxytocic.-

Dr. Gutteback has seen in Colchicum a peculiar influence over uterine contractions.

He administered ten grains of Colchicum in powder to a female in whom the uterus was contracted over the placenta.

The dose was repeated. As the uterus dilated, uterine contractions came on, and enabled the placenta, which was in a state of retrogression, to be removed.

Dr. Metta relates a case of abortion in which placenta was retained, and uterine contractions had ceased.

Two doses of powdered root of Colchicum at an interval of half an hour, were prescribed, and soon after uterine contractions came on.

II. In Leucorrhoea.-

Mr. Ritton has experienced great benefit from Colchicum in powder in Leucorrhoea. A week or ten days is generally sufficient to complete the case.

The patient must be strictly kept from all alcoholic liquors while under its treatment.

III. In Gonorrhoea.-

Dissmann of Berlin speaks very highly of the
results obtained from the use of an opiate wine of Colchicum in Gonorrhoea.

The preparation he uses is as follows:

Ch. Vini Colchici ſtīg

Fintura Opium gtt. xxx. M

This is either given in increasing doses, or twenty drops twice daily. The cure is generally complete from the seventh to the fourteenth day.

IV. In Chordee.

In a case of Gonorrhoea, for which Culebs was pres-cribed, severe Chordee supervened.

Sir Benjamin Brodie remarked that Colchicum relieved the painful symptoms of Chordee better than Opium, and had also the effect of restraining sexual desire.

He gives a draught of the wine in one and a half ounces of Camphor mixture, for a dose.
Attention is made of three cases in which profuse phlegm resulted from the use of half a drachm of the tincture of the seeds of Colchicum, three times a day, for some time.

In one of these cases at least, no mercury had ever been taken, nor had he ever been salivated.

They were all cases of Phthisis.
Other uses of Colchicinum -

I. In Tetanus -
D. Smith of Port au Prince, employed Colchicinum advantageously in tetanus, both traumatic and idiopathic. He gave it in full doses repeated every half hour, till it produced an emetic or cathartic effect.

II. As an intoxicating Agent -
Chametan says that the Turks procure for themselves a kind of ecstatic drunkenness with the wine Colchic.

III. As an Anesthetic -
D. Perrea states that Chauden and Bammback used it successfully for expelling tooth-worms.

IV. As a vermifuge -
Banham has employed Colchicinum successfully as a vermifuge for pediculi of the head and pubis.

V. Colchicinum has been used topically with great success to relieve gouty and neuralgic pains -
D. Gumpert has noticed the case of a clergyman, who had been confined to his bed for six weeks with Rheumatism. On the fifth day after using frictions with the extract of the seeds, he was enabled to leave it.

D. Laycock has also used it with great success, in Gout, Rheumatism, and also Neuralgic pains.
In 1832, Mr. Cotter published a notice of having used Colchicum in Asian Cholera. The cases are not detailed, and nothing more is remarkated than that he used it with perfect success in all stages of the disease.

No dependence can be placed on statements so vague as this, with regard to the utility of any remedy, nor does it appear easy to understand upon what principles a substance having the physiological action of Colchicum, could be expected to be useful, either in the preliminary diarrhea, or in the stage of Collapse.

The well-known fact, however, that many Cholera patients after having passed from the stage of Collapse, into that of Abaction continue to be affected with complete suppression of urine; that many of these die in a comatose condition, obviously from accumulation of urea in the blood, naturally point out the employment of diuretics, as being indicated in the reactionary, and subsequent stages of the disease; and the power of Colchicum of eliminating it, seems to indicate it as the form of diuretic most applicable to the occasion.

That the non-existence of urea in the urine, and its accumulation in the blood are at all events pathological conditions of this morbid state, has been abundantly established.

In 1832, Dr. C. Hanbury published the case of a female, the serum of whose blood contained 1.46 per mille of urea, and in 1849, Dr. Robertson corroborated this fact, by publishing the de-
In 1849 Dr. E. Phipps published several analyses of the urine, by which it was distinctly shown that little or no uric acid is present in that fluid when such can be obtained.

During the late epidemic of Cholera in this city, I had a favorable opportunity of observing the action of Colchicum as a diuretic in this disease.

In the case of a female, in whom a very small quantity of urine, deficient in urea, was voided, the acetum Colchici was prescribed, this was followed by the desired effect upon the urine, and with great benefit to the patient.

Other cases, occurring in the hospital, were not so successful on account of the accession of diarrhea.

The great indications in the treatment of this disease being toincrease the amount of urine, wherein that is deficient, and to aid the elabration of those principles which it is the province of the kidneys to eliminate, the accumulation of which in the blood, we may readily suppose to be the cause of the accession of coma, it appears probable that Colchicum might prove of eminent service; at all events it is well worthy of further trial.
In Bright's Disease.

A consideration of the physiological action of Potassium, namely its diuretic action on the kidney, combined with the property of increasing the elimination of Urea, leads me to suggest the probability of its being found useful in some cases of Bright's Disease.

This sentence to offer as a mere theoretical speculation, which I have had no opportunity of submitting to the test of experience, and which, so far as I can find, has not been adopted in practice by any of the authors who have written on this subject.

It is true that Dr. Port mentions the use of Potassium in this disease, but only where the gravity of its disease is present. Irrespective of this state, I venture to suggest its employment.

The presence of Urea in the blood appears to be one of the established phenomena in the advanced stages of Bright's Disease.

In 1809 Dr. Portock suggested that Urea, being deficient in the urine of patients labouring under Bright's Disease, might be detected in the blood. He accordingly "sought for it in the serum of several of Dr. Bright's patients, but could detect only a matter possessing peculiar properties, which seemed to approach to those of Urea."

In the same year, Dr. Christian first detected this principle in the serum of the blood, in several cases of Bright's Disease.

The case which he relates is as follows.
The urine in this case, although not greater in quantity than natural, contained only a fiftieth of the normal proportion of Urea. The action of nitric acid on the extract of the serum produced a beautiful radiated mass of johannes, nearly crystals of Bicarbonate of Urea.

In 1820, Dr. P. Owen-Rice published a statement of his analyses of the blood of patients labouring under Bright's Disease, and showing the presence of Urea in the Blood. The following are his analyses:

1. Serum - Sp. Gr. 1.015 - Contained in 1000 gos -
   
<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albumen</td>
<td>26980</td>
</tr>
<tr>
<td>0.201 grains</td>
<td></td>
</tr>
<tr>
<td>Urea</td>
<td>0.5</td>
</tr>
</tbody>
</table>

2. Serum - Sp. Gr. 1.025 - Contained in 1000 gos -

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>902.20</td>
</tr>
<tr>
<td>Albumen</td>
<td>65.00</td>
</tr>
<tr>
<td>Extractive Salts</td>
<td>30.30</td>
</tr>
<tr>
<td>Urea</td>
<td>0.50</td>
</tr>
</tbody>
</table>

1000.00

We have here a deficiency of albumen, an increase of salts, and an ingredient foreign to the serum.

3. Serum - Sp. Gr. 1.039 - on natural -

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>896.6</td>
</tr>
<tr>
<td>Albumen</td>
<td>81.6</td>
</tr>
<tr>
<td>Extractive Salts</td>
<td>21.3</td>
</tr>
<tr>
<td>Urea</td>
<td>0.50</td>
</tr>
</tbody>
</table>

1000.00
In this last case, the albumen was of normal quantity, but there was invariably present 0.50 per mille of nea.

D. Pees states the largest amount of nea he has found in the blood of Bright's Disease is 0.5 per mille, and the smallest 0.209.

D. Bright states "in one very remarkable case, where the albuminous condition of the urine has constantly existed, as far as I know, from frequent experiment, for above three years, the quantity of nea in the blood is very considerable."

"The results of chemical analyses by D. Babington were, that the urine did not contain one third of the urea, which it does in health, while about one per cent. of albumen supplied its place. The serum of the blood was remarkably light in consequence of its deficiency in albumen, having a specific gravity of 1021 instead of 1030; and the quantity of albumen in 1000 grains of serum, amounting, after careful drying, to only 30 grains, whereas from 80 to 100 parts in 1000 is the usual proportion in healthy serum; and it contained fully as much urea as the urine did, the 1000 grs yielding nearly 10 grs of that substance."

The following analyses of the urine in Bright's Disease, will show the relation which nea and albumen bear to each other, and to the other constituents of the urine, but first the normal analyses of the urine as given by Berguerel, must be noticed.
Table showing the mean composition of Healthy Urine (Bozward) 130.

<table>
<thead>
<tr>
<th>Specific Gravity</th>
<th>1018.900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>968.815</td>
</tr>
<tr>
<td>Urea</td>
<td>13.838</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>0.391</td>
</tr>
<tr>
<td>Inorganic Salts</td>
<td>7.695</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>9.281</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1000.00</td>
</tr>
</tbody>
</table>

Compare now the following analyses of the urine of Bright's case.

<table>
<thead>
<tr>
<th>Specific Gravity</th>
<th>1014</th>
<th>1022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>966.10</td>
<td>933.50</td>
</tr>
<tr>
<td>Solid Constituents</td>
<td>39.90</td>
<td>66.50</td>
</tr>
<tr>
<td>Urea</td>
<td>4.77</td>
<td>10.10</td>
</tr>
<tr>
<td>Uric Acid</td>
<td>0.40</td>
<td>0.60</td>
</tr>
<tr>
<td>Fixed Salts</td>
<td>8.01</td>
<td>10.00</td>
</tr>
<tr>
<td>Extractive Matter</td>
<td>2.20</td>
<td>—</td>
</tr>
<tr>
<td>Albumen</td>
<td>18.00</td>
<td>33.60</td>
</tr>
</tbody>
</table>

It will be seen from the first of these, that the urea is only a third of its normal quantity; Uric acid and salts nearly natural, while there is morbidly present 1 1/2 times the amount of Urea, of Albumen. As the second the albumen is in the ratio of 3 to 1 of Urea.
From these statements it will be seen, that in Bright's Disease, the Albumen morbidly excreted in the Urine, and the Urca are correlative and vicarious principles. That in the Blood, while the Albumen is diminished, Urca is morbidly present, and in the Urine, while the Urca is greatly deficient, Albumen is morbidly present.

Bright we not then reasonably expect that Colchicum, acting as it does, by removing the excess of Urca in the Blood, and re-establishing it in normal proportion in the Kidney, would sometimes act as a favorable auxiliary to the treatment of this disease?

When Ascites or Aurescence are present as intermittent affections, and as we know that in such cases, the dyspepsical effects may be removed in one of three ways, namely - I. By Catharistics, II. Diuretics - III. Diaphoretics might not the combinations of these three modes of treatment as it exists in Colchicum, not only answer this purpose, but also act beneficially, by increasing the Urca, and displacing the Albumen in the Urine?

In cases where Coma supervenes [obviously from accumulation of Urca in the Blood] Colchicum might prove a valuable remedy.

In all cases where suppression of Urine exists, or where the constituents of the Urine are eliminated in improper quantity, Colchicum, I believe would bear a fair trial.
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