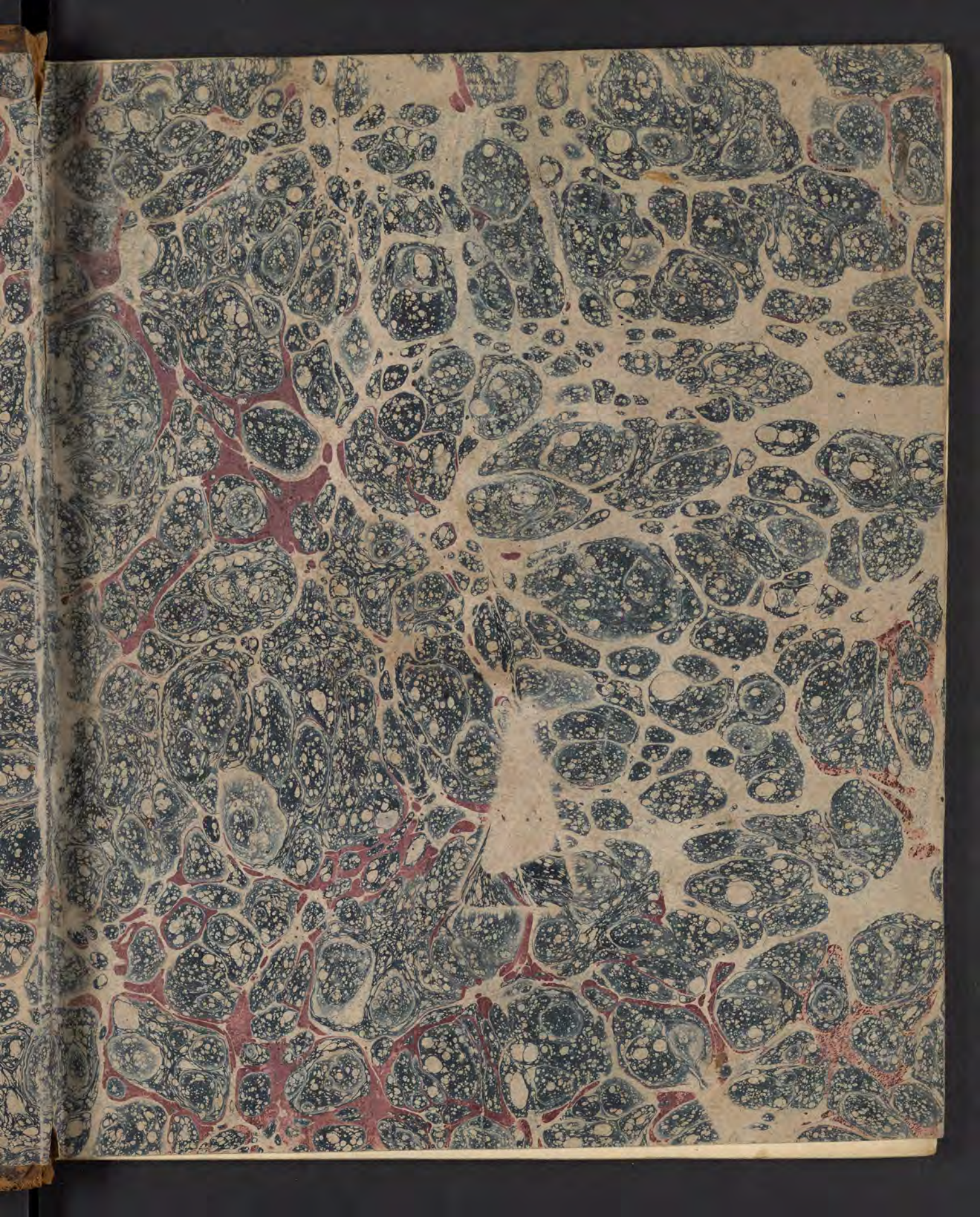

NOTES

on the

MATERIA MEDICA

LECTURES

B.S. BARTON, M.D.

La vie, ou la Mort

NOTES

on the

MATERIA MEDICA

from the

LECTURES

of

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NOTES

MATERIA MEDICA

LECTURES

R. S. BARTON, M.D.

Vol. I.

Materia Medica

Is the science which comprehends the medicinal virtues of substances.

Mankind very early became acquainted with the medical power of certain substances, but this acquaintance we readily conceive to be the effect of accidental observation, random trials, and a direction of some Analogy: They appear to have been assisted in their researches, by having been like some other Animals, born with instinctive principles: For instance the child does not perform deglutition in Utero, but immediately after birth it instinctively requires and swallows the milk of its Mother. By these means they increase the number of Medicines, and retained those especially whose virtues experience seemed to confirm.

Paracelsus first introduced the absurd notion of astral influences, and the doctrine of signatures, by this it was supposed that there existed a similarity between vegetables and the symptoms of diseases, or that those plants which bore any, even the least resemblance to any part of the body were

perfectly efficatious in relieving the diseases of such parts. — The Indians of this Country still retain this method of judging the properties of plants and other substances: hence they suppose that venison will enable those who eat of it to run with swiftness, and that those who feast on the flesh of the Deer, will like that animal be sluggish and lazy: Hence also they presume that the touching of a Mole by their children will at some period of life produce blindness. —

I should hardly be excuseable in taking up any of your time in dwelling upon these absurd opinions but that they have been partially adopted by some Men of science and eminence: Thus the Great Lord Bacon appears to be not entirely free from them. — The doctrine of signatures however has not been attogether un= = productive of benefit to mankind, thus altho' the were not found to be provocatives to venery, or as useful in the diseases of the genital organs, yet they were discovered upon tryal to be nutritious. Its benefits were no doubt purchased at the expence of much inconvenience or even injury, but from the nature of things this will always be the case with men. — In this part of my lectures upon the Materia Medica I think it necessary

to dwell for a short time upon the means of acquiring a knowledge of this science: These I shall compromise under the following heads; Viz. Chemical examination, the Botonnical Affinities, the sensible qualities of substances, and Experimental investigation of them: of these we will treat in the order mention'd

Of Chemical Examination

By Chemical examination of the different articles of the Materia Medica I mean a Chemical resolution of them, and a separation of their constituent principles from each other. — It has been long the opinion of Physicians that Chemistry is useful in discovering the properties of bodies. — Thus in many of them does it discover the presence of an acid, and an Alkali: These examinations however should not in general be considered as useful, nor am I singular in this opinion, for it is now the prevailing sentiment among physicians, that chemical Analysis is exhemely uncertain; so that it is now preety much laid aside. That Chemical resolution which seperates the particles of bodies without changing their nature

is more useful, but even this does not conduct us to a certain and accurate knowledge of their qualities; by this method of resolution we may find a virtue more considerable than there is in the original plant owing to its having been when in a natural state in combination with some other virtue, and sometimes we find a virtue entirely new and fictitious. — If therefore some resinous plants are found to be purgative we are not to suppose that the same Medical quality exists in all resinous substances. Six grains of the pure venom of a viper being mixed with Nitric acid, produced common air, and about one third of phylogisticated and fixed airs; these are very similar to the products obtained from Gum Arabic, so much so indeed that the Abbi Fontana in his experiments was unable to distinguish any difference between them. Mr Davy has proposed to give us a Chemical Analysis of Fox Glove, and I should be glad if he was to do so, I doubt however wither it would be useful in a practical point of view. — Chemical Analysis is therefore in a great measure useless, tho we are not to suppose it entirely so. — The Chemical combinations by

different mixture is certainly useful, and has considerably improved the Materia Medica. Thus laudanum is made by suspending Opium in Alkohol, because the resinous parts of Opium are found to be insoluble in water. What I have said relative to the of Chemical Analysis is directed against it as it exists among us at present for some future Abbe Fontana may arise who will be able to distinguish between the venom of a viper and Gum Arabic, or some Mr Davy who will be able to inform us upon what principle in Fox glove its virtues depend. ——

Of the Botanical Affinities

Altho there is a close connection between the Materia Medica and Botany, yet a knowledge of the latter is not an essential requisite to improvement in the former; By Botanical Affinity we mean that resemblance which is perceptible between the parts of fructification in different vegitables; That is, in their flower and fruits. Thus the common Folio and the Mallows considerably resemble each other in their parts of fructification, It is this similitity which is called Botanical Affinity. —— A like resemblance

exists between the Night shade, the James town weed and several others which may be adduced. Such plants are supposed to agree in their Medical properties. By Herman the Tobacco and the Henbane are supposed to be alike in medical virtues, as they are in their fructification. The botanical affinity is nevertheless important as from it we learn the cause of this operation and the powers of medicines. Almost all the fifteenth Class of Linnaeus called by him Tetradynamia are related to each other in this way of botanical Affinity, they are all Antiscorbutic, have an acid tast, and by distillation afford the Volatile Alkali, or Ammoniac: Examples of this we find in the Horse raddish, the Turnip, and the Scurvy grass. In these vegetables then there is a similarity in their properties as well as in their botanical Affinities. — We must not however be led from these examples to conclude that the rule is an infallible one. In this respect it may be compared to the science of physiognomy, by which though we are generally able to tell from the countenance of a Man, whether he is remarkable either for the suavity of his temper or the depth of his intellect, yet in many cases we

are deceived, and sometimes led to form an Idea totally opposite to the correct one. Some men may carry with them evident marks of strong understand= =ing or fertility of imagination, and these marks are not deceiving; while others again who are eminent in those qualifications, and whose genius may be of a superior cast to the generallity of Mankind, are not, if we were to judge from appearances superior to their fellow creatures. —— Bishop Atterbury asserted that he should have supposed Sir Isaac Newton to be a good man, and one of not an inferior under= =standing, but that he carried none of the marks of that strong, that vastly extensive genius, for which he was so pre-eminently distinguished. From all the portraits I have been able to see of the great and good Dr. Boerhave, I could distin= =guish nothing remarkable in his countenance nor any characteristic of strong Medical genius. Generally however the features convey to the Spectator an accurate portrait of what lays within, tho in some, and in many instances they may lead us into error. The same remarks are applicable to plants, altho' a person trusting entirely to their ap= =pearances ~~xxx~~ would not unfrequently be deceived, yet he may be generally correct. —— Examples of ex= =amples (say exceptions) to the common rule are to be seen in the Melon and the Colocynth of the shops,

the former we know is eaten frequently, in large quan=
=tities without inconvenience, while the latter is violently
emetic, and cathatic. The common Potato is of the
same genius with the Night shade, yet it is known
to all of you how different they are in their proper=
=ties. — By Natural order of plants we mean
those in which there is a general resemblence,
though there may be particular differences: As
Examples of this I will adduce the Tobacco, the
Mullin, and the Fox glove. — From their appear=
=ances we should suppose them to possess similar
properties. Some writers on the Materia Medica
have classed plants according to their Botanical
affinitiis; one of these is Doctor Murray, an
Author who has arranged under the same
genius, many vegetables have it is true a similar
appearance, but whose properties are extremely
different, some very violent articles he has classed
with the mildest, and others which are mild
with the most active and powerful. The natural
family of Grapes which are alike in their appear=
=ances resemble each other in their properties, as
Wheat, Rye, Oats, and Rice: The common Mullin
is of the same genius with the Stramonium, the
Night shade, and the Fox glove, all of these, the
Mullin excepted, are active medicines, and even

this is not among the mildest; when mixed with meal it will kill fish, it will relieve the Cough in the Influenza, and will destroy worms. ~~~~~~~~ Vegetables are often chafed together when they have the same characteristic, though it may be in a very different degree. Thus Tobacco, Mullin, and the Night shade, though they resemble each other strongly have each along with the property of the genus, something peculiar to themselves, and which serve to distinguish them one from the other.

Plants often contain qualities which in different parts of them are very different and sometimes directly contrary. ~~ The root of the May Apple purge while the leaves are poison= =ous. The fruit of the Strawberry is mild and pleasant but the root and leaves are Astringent. Opium may be collected from every part of the Poppy, but the seeds contain also a mild oil; This was employed by the antients as an article of diet and for the purpose of expressing it the Poppy was cultivated, though it is not certain whether they used Opium. The seeds of the Henbane yields a violent oil, which in ap= =pearance considerably resemble the poppy seed oil. ~~ The seeds of the Stramonium

which look very much like papaver somniferum are extremely active. The same plants differ also in different latitudes. Thus the Elder in Georgia contains a Gum resin, in Virginia considerable less, and in New York scarcely any.

From what has been said then, we perceive that though the Botanical Affinities may be useful assistants in the acquisition of a knowledge of the Materia Medica or the Medicinal virtues of vegetables, yet this knowledge can only be taught with certainty by experience.

Of the Sensible Qualities of Plants.

The Sensible qualities of substances, are their colour, taste, and smell. The Antients had two methods of acquiring the knowledge of Vegetables, first by viewing attentively the general appearance and habit of the plant, but this is less certain than by Botanical Affinities, Secondly by the resemblance between them in taste, and smell, this is a very natural method. If two bodies resemble each other in their appearance, taste, and smell, we should naturally conclude their properties to be similar

This method Naturalists have always adopted, and doubtless it has laid the foundation of a large portion of Medical knowledge.

We find that the Indians of our Country always taste and smell a plant before they will give their opinion of its nature. The sence of smell is what appears to direct Quadrupeds, in their choice of their food. The same Animals in a wild state rely more upon their senses of taste and smell in this respect than they do when under the care of man. Cattle are much injured by the Flagger weed, but only such as are much housed by man. It appears then that quadrupeds must be in this respect superior to us, as Savages are to civilized nations.

Dr. Cullen gives it as a general rule that those substances which do not effect the senses of taste and Smell, or which do ~~not~~ this in a very slight degree are inert and useless and should therefore be rejected from the Materia Medica, a few excepted which may be emollients or Nutritious. I would however observe that though this rule may be generally correct, there are nevertheless exceptions to it; some extremely powerful articles being nearly

destitute of either taste or smell. The Abbi Fontana affirms that the venom of the viper is inodorous and insipid; he diluted a drop of this venom in ten drops of water "I applied says the Abbi, the tip of my tongue to this solution and found that it produced no other sensation than that of coldness or insipidity; I waited for some time without its producing any effect, I then put a single drop of it on a plate of glass, and took it up (pure) upon the end of my tongue, this produced no peculiar sensation, I then took the whole of what could be procured from one Animal and rubbed it on my tongue, lips, and fauces. I now first felt a peculiar and cooling taste, not so much however as that of the purest spring water, this slight degree of taste had some resemblance to that of animal fat.

This if it were correct would be a remarkable instance to prove the fallacy of Doctor Cullens rule, I am convinced however from my own experience that Fontana must have been mistaken in his experiments, for his veracity I believe to be unexceptional.

In the Spring of 1802 I procured a quantity of the venom of the Rattle Snake, and in the presence of several very respectable Gentlemen,

and my own Pupils, I applied Six or eight drops without any previous dilution to my tongue, and rubbed it on my lips, roof of my Mouth. I hazarded thus much because there was no hazard in it, for I was almost convinced that the Abbi Fontana had not been deceived, and that consequently the result of my experiments would be the same as his: In a short time however I perceived a burning sensation of a peculiar kind upon my lips, tongue, and palate, like that induced by the Arum triphyllum, which in a little time extended to the upper part of the larynx: I relieved myself from this disagreeable sensation by washing my Mouth with warm water repeatedly, but could not be effectually removed of these effects as to prevent some degree of them attending me for the remainder of the day: The Gentlemen present before I mentioned the sensation it produced, observ'd a flushing of my lips. Thus there was a complete proof of the fallacy of Fontana's experiments; but not contented, I preserved a portion of the same venom and gave it to some Rabbits upon whom it produced a speedy dissolution. After this unequivocal proof that I had not been mis= =taken as to the venom itself, I hesitate not to declare

the fallacy of Fontana's experiment, but as I am far from entertaining the least doubt of his veracity. I suppose he must have employed, instead of the venom itself some of that Mucelagenous matter which both the Viper and Rattle Snake have the power of yeiling in considerable quantities. The taste of the venom appeared to me like that of the Indian Turnip, an infusion of which may be injected in considerable quantities in the blood vessels with impunity, whereas a single drop of the former mixed with the blood would be sufficient to destroy life. ——— The of South America is a strong exception to Dr. Cullen's rule. It has no taste, or smell than Liquorice, but it is a violent poison, when a small portion of it is applied to a wound in the body.

Some Authors upon the Materia Medica have arranged the Articles according to their Colour, Taste, and smell; saying that those that are alike in these respects, agree also in their properties. ——— These Gentlemen may have had more acute tastes than other men, and I believe that this was the case; a Mr. Hilligas of this City could tell whither the Sugar

which was used to sweeten Tea was cut by a knife, or broken, merely by tasting the Tea, I think the last mentioned mode of clarification often corrects, though not always so: There is frequently a considerable degree of difficulty in distinguishing taste and smell, we may indeed easily discern the Acids, the Astringents, the sweet and the styptic, for which most Nations have appropriate terms, particularly the three first, but there are many other tastes which cannot be comprehended under any one head, thus the term Acid is one which Dr. Cullen says can be applied to no particular taste, the term Nauseous also comprehends many tastes, which are disagreeable, but which contains also something peculiar to each. Powerful odoriferous bodies are supposed to act more upon the nerves, but I doubt the correctness of this opinion; nor do Sapid bodies act only on the Mucs, the exceptions are numerous as Camphor, Musk &c. I therefore think that though in many substances the taste and smell may indicate the qualities, the doctrine should always be pursued with the greatest circumspection, as it may in certain numberless cases prove fallacious, and as the Poet says "Nimium ne crede colori; So I say also "Nimium ne crede odori et Sapori.

Linneas the great Swedish Botanist has founded several classes of Medicines upon their odours, and some of his classes are good ones, but others are useless. — I think there are two odours, the piercing and bitter which have not been noticed, Upon the whole I think that we shall not soon derive much knowledge from the odours of substances, the time may come, but as yet it is far distant. — The difference of smell in the same substance should be no objection to it, taste is subject to like variations. — In Mineral substances the rule holds much less than in vegetables. Thus Arsenic Calomel, and Tartar Emetic have very little odours, and yet they are active medicines; Sulphur on the contrary has a powerful smell when burnt, without being efficatious on the body in any degree comparable to it odour. —

Linneaes has also given his opinion of the colours as to their indications of Medical virtues thus "Color pallidus insipidum est, viridus crudum, luteus Amarum, ruber acidum albus dulce, et niger ingratum", but though this as a general rule may hold better than any of the preceeding, yet like them it has its

numerous objections, For example color pallidus &c is certainly not a good rule, perhaps our Author meant those plants which are naturally green but are sometimes blanched by exclusion from light. — Viridis crudum: This is only applicable to fruits before they are ripe they are crude, but leaves always green are not all so. Luteus Amarum. this is frequently correct, but neither is it universal or nearly so, it merits however much attention. — Raber Acidum. This is often applicable to fruits. as Cranberry, Rue, glabrum, but not to all. There are many exceptions to flowers. The Beet is a remarkable exception the Red Beet is much sweeter than the white. Color Albus often indicates sweetness Color niger it is true often indicates something disagreable or suspicious. The Whortleberry however is an exception, but I knew a Lady to whom their smell was very unpleasant. The black Currant is very disagreable to many people, and in a warm day emits a considerable smell. The rule therefore may be sometimes applicable and I would advise you to recollect Linnaeus's opinion in your sholls in the woods or other places where plants and flowers will attract your notice.

Of Experience

An Experience of the effects of substances upon the living human body is certainly

the only sure means of ascertaining their Medical virtues, but the employment of this experience is sometimes extremely fallacious and uncertain, and the writers on this subject abound with many false conclusions which are nevertheless supposed to be drawn from experience. — I am not inclined to pursue this subject with minuteness as it must be obvious to all that Experience itself must have its errors. Dr. Cullen dwells largely, and I think properly on the subject. I therefore recommend a perusal of his opinions.

Of Arrangement.

Most writers upon this subject have adopted a plan of their own, but they are almost all objectionable: Linnaeus's division according to the Natural Botanic classes is like the others very exceptionable. It is true that many of the blades are natural ones, but the same cannot be said of many others. — Profesor Murray, whose work is a very valuable one, has gone upon pretty much the same plan, and of course many of his classes are unnatural. Sometimes vegetables of very different properties are associated under the same natural order

Thus the Squills Onion, Asparagus, Hellebore, some of the species of aloes, and the pine apple are blended together; I need not say how opposite they are to each other. — Some writers have adopted a physiological arrangement: Almost all Nations have acquired some knowledge of Anatomy; hence we find that attempts have been made to arrange medicines according to the different parts of the body which they were supposed more particularly to affect. Linnaeus seems to have an eye upon this phymological arrangement when he speaks of Nervantia, Arcesalia, Muscularia &c. Nervantia he says increase the avidity of the nerves and produce convultions and other disorders of the Nervous System; his class of visuralia is a very absurd one, and he seem to have buried his vast genius under the rubbish of the Antient Schools. — Later writers have however distributed the articles of the Materia Medica under the head of Emollients, Adstringents, Tonics &c.

The genius of Senacus certainly erred very much when he made the division I have just mentioned. The human body, according to the late Mr Buldone, is a system divided into many subordinate ones; Man is

compounded ~~compounds~~ of vital organs whose properties are peculiar to themselves, and the life of the system is composed of the lives of these different parts. —— Linnaeus has however had many copies. —— From this system a new arrangement has been proposed and it would probably be the most correct foundation: For although some medicines affect particular parts, yet this cannot serve as a basis upon which to erect a division of the articles of the Materia Medica. The Animal chain is composed of many links which depend closely upon each other, and impreſsions made on the one are communicated to all.

It has been asked. Are there any Substances whose properties entitle them to the appellation of specifics? No I do not believe this, but I think that there are some medicines which act upon some parts of the body more particularly than upon others; but not to the exclusion of them, we might therefore with great propriety substitute the term Idiopathetic which expreſses that an effect is produced upon some particular part of the body. —— Thus I suppose the Saccharum Saturni is a idiopathetic medicine, from its effects upon the blood veſsels. Arsenic is another example, which seems to act more upon the cellular membrane. ——

 Dr. Darwin has proposed to divide Medicines into seven classes. 1st. Nutrientia or Alimentary. 2nd. Intantia as Opium, Oxigine, Æther, Alkohol &c those substances which enervate the exchonis of parts, they promote costive=ness and the secretions. 3rd. Secernantia or those which encrease the secretions as Diaphoretics, Salivants, expectorants, diuretics, cathartics, and Erhenis or those promoting the secretions of the tears and mucus of the nose. 4th. Sorbentia those encreasing the action of the Absorbents, those which increase cutaneous absorption and from the cellular membrane, those encreasing the Intestinal and lymphatic Absorption. those which encrease all the Absorptions as Venaesection, purging &c. 5th. Invertentia, those which invest the natural order of the irritating motions, such as Emetics, violent Cathartics, and violent Erhinis 6th. Revestentia those which restore the natural order of the irritating motions, such as Musk Castor, Blisters &c 7th. Sorpentia those substances which diminish the Irritating motions; such as possess less the mulus than our usual food, as water; bland oils &c. They are what

are commonly called sedatives, Darwin also included those substances which are nutritious without stimulating, or at least in a very small degree. This method is undoubtedly highly deserving of attention. Cullen's arrangement is however superior though not entirely original. his physiological errors are very numerous and very great. Nor is the plan which I shall follow in the ~~Botanical~~ subsequent lectures perfectly new. I shall not pursue the Botannical arrange=ment, I shall frequently follow that of Dr. Cullen but often deviate from it. I shall also notice topical stimulants, as Blisters, Sinapisms &c.

The Materia Medica is divided into two branches. Viz. 1st Materia Medica properly so called, or that which comprehends Medicines, and 2nd Materia Alimentaria comprehending Aliments, and which shall first engage our attention.

Of Materia Alimentaria

Writers upon the Materia Medica have in general paid too little atten=tion to this part of their science, Cullens works is highly praiseworthy in this respect, and I should think it the most important and certainly

the most original part of his work, but he has not=
=withstanding numerous errors. I design to pay con=
=siderable attention to this subject, and also to the
effects of climates; I shall speak not only of the
Quality but also of the quantity of these substances.
By the term Aliment we mean those articles which
are capable of supplying the Animal Fluids or
solids, they might be considered as they are more or
less properly fitted for digestion; but I shall not
dwell on these minutae. — There is some diffi=
cutty of disposing of some substances under this
plan, such as Coffee and Tea which are frequently
used as articles of diet but are also prescribed
as medicines. I shall however dispose of them
as is most convenient. — Dr. Cullen is of opinion
that the parts of vegetables which are fitted for
the formation of animal fluids are an acid, a
Sugar, and an oil. This idea is original to him,
but not quite conformable to the doctrines of
Chemistry; it is in part very correct and embraces
many very interesting facts. — We shall treat
of the Acid, Sugar, and oil in the order
mentioned and first,

Of Acids.

The substance of Cullens

theory is as follows. — Man consumes many kinds of vegetable matter all of which an acid is one ingredient, but more particularly of vegetable fruits. — In these it is commonly combined with more or less sugar; This acid is frequently converted into sugar in the progress of maturation and is therefore nutritious; he also thinks that all the variety of vegetable matter, except the oily undergo an ascesent fermentation in the stomach. This acid afterwards disappears and cannot be detected in the blood. It must therefore combine with the animal fluid: he thinks also without acids the animal fluids advance towards a putrid state, such a state as he thought ~~theory~~ scurvy to consist in, and therefore he concludes that this disease is to be cured by acids. Acids therefore he thinks necessary in food. — Vegetable food is however not essentially necessary to support life, for Individuals have lived entirely upon animal diet, and sometimes whole nations have done the same. At times too scurvy has been ~~done~~ cured by animal diet. — Doctor Cullen thinks it again necessary to remark that fossil acids do not enter into the composition of the blood, (I do not pretend to say that these acids are nutritious) his opinions however are not physiological. —

The diluted elixir of vitriol may be taken without its presence being detected in the blood. To prove that the fossil acids do not enter the blood Cullen says that they irritate issues, but this is the effect of many substances which we are certain do enter into the blood, as Mustard, Horse Radish &c. Dr. Cullen has not proved that the fossil acid do not cure the scurvy. — Of the acids he has mentioned I think that some are more nutritious than others, such as the Phosphoric and Benzoic acids. — I think that the vegetable acid is in some measure necessary in the food of animals.

Dr. Cullen thinks that the vegetable acid which is found in the animal fluid is produced in the stomach, this idea infests all his writings. — Some of the acids are I am disposed to think nutritious, such as the Phosphoric and Benzoic, the former enters largely into the composition of the blood, and the latter into many articles which are used largely in diet. —

Upon the whole I think Cullen's opinion has some foundation, but at the same time that vegetable diet is not essentially necessary. — Among animals there are none strictly carnivorous or herbivorous. It is thought

by Cullen and many other respectable writers that the digestion of vegetable matter is owing to the acetous fermentation, but it is satisfactorily proved that digestion is owing to the Gastric juice, this is proved by Spabanzani, John Hunter, and many others. These proofs you will find in the writings of the first named gentlemen, to which I refer you not only for their correctness of physiological opinions, but from their correctness and purity of Style. — The process of digestion appears very simple to the followers of Cullen's opinion. — Chymical Physiologists have been too apt to consider the living stomach, as the same with a lifeless vessel, as a mere Automaton, having various parts play= =ing upon each other, without recollecting that in it there is a living principle. — The same remarks may with propriety be applied to the Mechanical Physiologists. An acid is often thrown up in vomiting which is produced instantaneously. This has been thought owing to vegetable fermentation. But it is unsafe to reason concerning Physiology from our knowledge of the nature of the fluids, and of the effects of agents upon them out of the body. — Upon the subject of the putrefaction of the fluids & see Dr. Seybert dissertation. Dr. Fordyce thought it

impossible to immitate the process of digestion, he gave a Dog animal food, and killed him an hour afterwards, but no acid could be detected; he gave another bread and the juice of the Cherry detected an acid, but he recollected that this was not the natural food of the dog. — The digested aliment of sheep, and others which live on vegetables did not shew the presence of the least particle of acid. —

The Experiments of Dr. Bland of Virginia are satisfactory: he put flesh into the gastric juice, and found no acid, his experiments have been repeated by Spallanzani with perfect satisfaction, he tried the contents of a Rabbits stomach, and found no acid; he found none in the substances thrown up from the human stomach. He wrote in the year 1766 or earlier. —

Dr. Wilson published an Inaugural dissertation, and his experiments were attended with the same result. — I think therefore that when the acetous acid has been found in the stomach the digestion has been incomplete and unhealthy. —

Sometimes an acid has been found there, but it is not when in the healthy stomach the vegetable acid, but one of a different nature. — It is now generally believed that the healthy stomach emits no acid, or putrid odours, unless it be in a morbid state.

I knew a child with worms whose stomach emitted a strong smell of Phosphorous, it was also much affected with ricketts. — This Phosphoric smell proceeded from the wheat &c which with other grain Phosphoric acid enters largely into, being imperfectly digested. —

Heat is not so necessary to the process of digestion as some have supposed; fishes have strong digestion, the Pike digests bones &c A certain degree of heat is however probably necessary. The bile is said to be excrementitious but in many animals this fluid is poured into the stomach. The Atramentum of the Cuttle fish is not bile, but is all excrementitious substances. The whole process of digestion is not finished in the stomach for true chyle is never found in that viscus. — If the Pylorous of the stomach of an animal having one like us be tied, while digestion is going on; the lymphatics swell not with the chyle, but with a transparent fluid. —

I believe that chyle is formed in the whole part of the Indians both large and small, and I conjecture that those animals which throw their bile into the stomach have something more like chyle in their stomachs than others.

The chief part of the business, Chylification ~~is~~ is performed in the small Intestines. In some animals as fishes, part of the process of digestion is performed in the stomach, and I am inclined to think that in the lower part of the Œsophagus of man, digestion is partly accomplished.

Upon the whole I again repeat that though an acid may be found in the stomach, yet it is not the vegetable acid.

Of Sugar.

This is the second kind of Vegetable matter which is fitted for forming the animal fluid. Cullen thinks it is not fit when in the Saline state though it is nearly so in the sugar Cane. The Inhabitants of warm Climates eat much fruit, of which Sugar is an ingredient. The Date is one instance of this, it forms one of the principle articles of diet of many nations, and contains much Farina. The fig is another article of diet, the beet, and the raisin. The Indians are well acquainted with the Nutritious quality of honey; when they set out on a Journey and cannot make it convenient to carry much provision with them, they mix together honey and Indian Meal, which they find very nutritious. A number of the fruits

we consume contain much sugar, as the Beet and others, every kind of farinaceous matter contains much Sugar this is proved by their germination and their tendency to the vinous and acetous fermentation, The seeds of wheat, Barley &c. contain a considerable quantity of sugar. — I now proceed to speak of the Nutritious quality of the sugar. —

Dr. Murray says that sugar in its saline state is not nutritious, but that a considerable degree of Nutrition is in the sugar cane, and Dr. Boerhave observes that the excessive use of it reduced the bulk of the body. — This however I do not believe to be the fact, the use of sugar is apt to induce Phlethora. — Mr. John Hunter advised Sugar & honey to those who had been reduced by the use of Mercury in syphilis, and sugar is nutritious to several other animals besides man, but not to all, for to some it is poisonous as I shall shew under the head of Anthelmintics, It is a more powerful vermifuge to some worms, than any other article I know. With grass it is useful in supporting horses, and a great deal of attention is paid to this subject in England. It possesses a great advantage over other Alimentary matter in keeping so long without spoiling, and its antiseptic quality is proved by many facts. — Dead pigs, placed in boiling sugar have kept sweet for a

long

31.

time, the same has been noticed with venison, veal, mutton and other animal food or flesh. The antients preserved bodies in honey, and I am told that the practice is yet retained in the Kingdom of Ava; to embalm the bodies of Heroes, and other great men. The Scurvy is unknown among the East Indians, a people who make much use of sugar, and this article is a useful remedy in the disease. Drs. Mc. Bride and Trotter have recommended Sugar as an excellent preventative of Scurvy, and it is certainly useful to those afflicted with it, to wash their gums in a solution of the article. Sir John Pringle observes that the Plague is unknown in Countries where our article is much used; but the Yellow Fever is very common in the West Indies; he thought from its being an antiseptic it would prevent Malignant diseases, several facts however have occured under my notice to prove that Sugar will not prevent the Yellow Fever.

I do not think with Doctor Cullen that these Fevers are less frequent now than they formerly were; Leprosy is not prevented as has been supposed by some Authors, by a Vegetable diet, this disease has been expelled from many Countries, without any remarkable change

having been made in their diet. — I think this disappearance of Lepra is owing to the introduction of Syphilis which I consider as the same disease.

Dr. Stork has made some experiments to ascertain the effects of sugar, and while he subsisted on it he found himself less disposed to drink than before; After living two weeks upon it exclusively he found his gums swelled, and bleeding, and also small ulcers on the inside of his cheeks; he had frequent liquid stools; he left it of and returned to animal food, and wine, and upon resuming the sugar he lived five days upon it, without experiencing any of the former disagreable symptoms: Scurvy is sometimes produced by vegetable diet. —

Sugar exists in all vegetables, though Chemists have not been able to detect it in some as the Fungi. Baron Humboldt however says he exhailed it from them, and I believe that the Bees also procure honey from them. — The reason they contain but little sugar is owing to their growing where they get but little light, which, as you will hereafter be more fully told, is highly favourable and necessary to vegetation. Dr. Fordyce says that there is no sugar in Lichens or Mosses or Algi. Sugar is procured from the Grape, the Cocoa Nut, the white Birch, common

Fig.

Aloes, Hickory, and many other substances; the Sugar Maple contains it in great quantities. It exists in the animal world as in honey and in milk, but I am not well persuaded that it exists in the blood; It may however be there, for something like sugar was obtained from the coagulable lymph, by treating it with Nitric acid, by Doctor Pennington. — Mr Cruckshank obtained something like honey from Diabetic patients; this afforded Oxalic acid. — As I have mentioned Diabetic it may not be improper to observe that Sugar should be avoided in the Diabetis Mellitis, for it is a diuretic and would increase the immoderate flow of urine. — Indeed it has been said to produce symptoms of Diabetis, — the disease is probably in common produced by an extremely morbid action of the heart and arteries of irregular gout, in which disease the Serum often exhibits a Saccharine taste, and perhaps this is the cause of Diabetis. — —

It has been asserted that animal diet should should be used in Diabetes, but I doubt the propriety of the practice, and in such instances where I have been a witness the disease was increased by it. — — — — — —

I once cured myself of Melitis by a regular diet. — Certain Oils, Butter, and Hogslard, contain Sugar, tho not exactly like the common Sugar. —

The analysis of Sugar by Mr Cruikshanks proves it to be a pure vegetable oxide, containing 64 parts of oxygine, 28 of Carbone, and 8 of Hydrogene in the 100.

Maple sugar is not so soluble in hot water, as common sugar is; according to Doctor Alison it dissolves in half its weight of boiling water, and calcined, left a residuum of something like lime.

Sugar according to the Chemists in the mineral kingdom in the Bryle of Saberia where we would least expect to find it. ~~~~~~~~

Is Sugar injurious to the vigour of the digestive Organs. ~~ No. I do not believe it is. Children always use great quantities of it without impairing their digestion, and I know many Adults who are in the habits of using uncommon quantities of sugar particularly happy in digesting their food: ~~~ Where however symptoms of ~~ Dyspepsia from Arthritis have come on, I believe our article to be injurious. ~~~ The vulgar opinion is that this substance is injurious to the teeth, but I am far from given it credit. ~~ Dr Cullen relates that the Inhabitants of a part of Scotland, where they are very fond of sugar and make much use of it as it enters into the composition of several meats, and Confections are in general possessed of very fine teeth. ~~ The Negroes in the West Indies, whose diet is chiefly composed ~~

of sugar in its different states, have been from the whiteness of their teeth envied by the most beautiful ladies. — I must however confess that the teeth being already injured, large and inordinant quantities of raw sugar may tend to increase the injury. —

The good effects of Sugar and all Saccharine matters in Stone and Gravel — complaints are unquestionable. —

You will no doubt avail yourselves of what has been said of the importance of this substance in a practical point of view. —

Of its virtues as an Anthelmentic I shall speak hereafter, but at present I observe, that so far from being injurious to people affected with worms, it would be proper to give them large quantities of it, besides what enters in their Tea, Coffee &c. —

Of Honey.

Honey though afforded by the Bee, an animal may nevertheless be considered as a vegetable substance, for besides that it is extracted by the Bee from Plants, and flowers, it is also found deposited on the leaves of trees. — Doctor Cullen thinks it very much

it very much like common Sugar, but this is not so for it is less analogous to that substance than has been supposed by him and others: In the first place Sugar and honey differ in respect to their nutritive quality, the same quantity of Sugar being more nutritious than an equal quantity of honey, owing probably to the laxitive quality of the latter, besides this difference, honey, independent of Oxigine hydrogene, and Carbone and a mucilagenous matter it is peculiarly anodyne and has been always recommended in Coughs and asthmas and the good effects are probably owing to some foreign matter attached to it; The late Doctor John Hume performed a radical cure of asthma on himself by the use of this article for about two years, he also at the same time cured himself of a gravelly complaint under which he laboured: he was successful with it in other cases of asthma, and I shall here relate an anecdote which occured to him, as an instance.

After the Doctor was cured of the asthma, a man who was a perfect stranger to him, but who it appears must have known he was formerly plagued with the disease, accosted him, and enquired by what miraculous

event he had been cured. Doctor Hume informed him that it was by the use of honey, and the stranger apparently much emaciated and depressed in his chest disappeared; about two years afterwards however he represented himself perfectly hale, and as it were renovated, telling the Doctor that the use of honey according to his presciption had wrought this evident alteration in his appearance. — Doctor Donald Munro too mentions some facts to prove the utility of Sugar in asthmatic affections: I have myself prescribed honey in cases of asthma, and found it to be very useful. — It has also been employd with good effects in cases of gravel. — It is a very good Anthelmintic and its virtues here are greater than that of Sugar. — The honey dew which appears in Virginia is of animal origin, coming from the intestines of the Apides.

Of Oil.

Oil in a pure state is highly nutritious; some authors think it more so than either of the preceding articles. Expressed oils therefore must be very nourishing; oily farinaceous matter some of the oily nuts, the Pea, the Bean and other leguminous substances must all be nutritious from the oil they contain. — In Scotland the poor class

of people eat a great deal of pea bread, and some of those who are unable to procure it are found to decline in strength: Servants when engaging for a place generally stipulate that they shall be allowed a certain proportion of this food: I found it however to be very indigestible to me. Pure oily matter constitutes a part of the animal fluid, Oil, either animal or vegetable is eaten by all Nations, and becomes mixed in the chyle, it might be supposed that it enters into the system only to form the oily parts of the animal fluid, and that it is not nutritious to the body; this however I do not believe, it is laid up in the cellular membrane of healthy persons, and before this it does not appear in any part of the body. Something like oil does appear at times in the blood, this is nothing but store chyle, for it coagulates by heat, which could not be effected on oil by the same agent.

In some diseases as Syphilis scurvy &c. It is absorbed, not however from any acrimony of the blood, as was supposed by Doctor Callen but for the nourishment of the body.

This absorption does not take place in disease alone for the Bears in the Northern climates absorb during the Winter the fat which they had in the Fall, and are therefore found lean in Spring. Some Naturalists are of

opinion that they are not nourished by the fat which is absorbed. Dr. Haller says that they do not pass any ~~experiments~~ excements, that they scarcely perspire, and that the circulation goes on them very slowly. — From this he concludes that it is not necessary that they should have any nourishment, since there is no evacuations from the system, he however seems to allude only to some animals in their torpid state as the hog, lizard, Rattle snake, tortoises and fishes &c. which appear to be completely frozen, but are nevertheless revived by the application of gentle stimulates; — their lives may be said to be interrupted, but certainly not extinct. — In this torpid state it is doubted whether the absorbents act, but they certainly sometimes do. The lacteals frequently act after the other parts are dead, and sometimes for two days after. —

I believe that the lacteal system is the Ultima moriens of the whole. — The System indeed seems to consist of several smaller ones, each of which, seems to be endued with a life peculiar to itself. — The Wisdom of Providence in giving as it were a larger dose of life to the lymphatic system, is evident when we reflect they are exposed to many causes which tend to destroy animal life.

It is a very useful circumstance in a torpid state. —

Some animals are only in a saperose state during winter, in them the circulation continues though the pulse is slower, the respiration goes on, and the circulation continues though the pulse seems to retain a very considerable degree of power, we are able by stimuli to excite certain actions: — They take in their holes a small quantity of stimulating substances, which they occasionally eat. — I have no doubt that the animal absorbs fat in the fall and lean in the spring, this appears in a remarkable manner to the rattle snake. — The absorption of fat takes place in the horse also, when this animal is killed by fatigue and death comes on suddenly from his being hard driven, a large quantity of oil is found recently absorbed. — Some naturalists think that the bloodless insects derive their nourishment in the winter chiefly from fat, as the locust, which remains in the ground sixteen years, and before it goes there, contains more fat than any animal I have seen. Fat is absorbed by the human lymphatis in certain circumstances, but notwithstanding all these it requires better proofs to establish the nutritious quality of oils. Doctor Stark lived fourteen days upon a diet composed of oil and sugar, and at the end of that time had gained four pounds, eleven ounces and six drachms, he found that a smaller quantity of

fat than any other substance would support his health and strength. — Butter is very nutritious and the vulgar prejudices to this article are extremely improper, it is favourable to a lax state of the bowels. Doctor Franklin found that it kept his bowels open and at the same time supported his strength. I therefore think it would tend to prevent bilious diseases; as it stimulates the blood vessels very little, I am not very strict in prohibiting it even when I wish to keep my patients upon a diet scarcely of a stimulant nature. — I think that one pound of Bread, with a proportionate quantity of Butter is more nutritious than two pounds of the former alone.

I believe however that the use of too much oily matter, as it is very nutritious, so it may induce a plethoric state of the system.

I do not believe these to be the only nutritious principles which enter into the composition of vegetables; since Man is calculated for living in so many different climates; the alimentary principles of his diet are probably more numerous than those of any other animal.

Of Mucilage

This part of vegetables, merits particular attention. — The greater number of those vegetable substances which are nearly insipid,

glutinous, inodorous, and colourless have been called gums, as Gum Arabic, Gum Senegal and the gum of the cherry tree. These exist in the plant combined with water. They are not coagulated by heat but weak acids and metallic solutions. These gums give much nourishment to the system, some Nations live almost entirely upon them: It forms a principle part of the dish of some Nations that live on the banks of the , and the Moors who trade with it frequently live entirely upon it and water. One Thousand persons journeying to Grand Cairo were supported upon it for three Months. In many diseases the patient is nourished by Gum Arabic alone. I saw the life and strength of a Child supported by it for more than three Months. — Dr. Cullen says it is ~~nitro~~ nutritious, and that it is composed of an acid, a Sugar and an oil, we must not however depend upon Cullens Analysis, for when he wrote his Materia Medica, the composition of Gum had not yet been detected by Chemists, the article is now known to be more compound than sugar, consisting of hydrogene, oxigine, Nitrogene, and lime; When we consider the large quantity of Mucilage which exists in plants and vegetables

substances, we may conclude that the nutritious quality resides in a great measure in the Mucilage. — Some Authors however say that Oysters are not nutritious. We cannot say how long other animals can subsist upon Gums, I therefore refer you to Doctor Youngs dissertation. — a Rabbit lived fourteen days upon Gum Arabic, but was leaner at the end of that time than before, the Zealanders live some time upon boiled linseed. Perhaps Gums and Mucilage are not the same; Mr. Barrow says that all Plants which yeild Gum have an astrin=gent bark; thus the bark of the wild Cherry which yields a very fine gum has some astringency, but he adds that this rule does not hold good with mucilaginous plants, to this there are many exceptions, as the Quince and most of the Cerealia in their wild state contain a considerable portion of astringency, but this is lost by cultivation. Hernistadt was the first who drew a line of distinction between Gum and Mucilage, as solution he says of Gum in water is clear and gluey, while that of Mucilage is slippery.

Of Carbone.

This is thought to be a simple substance, and is in my opinion highly Nutritious, my reasons for this opinion are, First that it is unques=tionably whither alone, or in a fixed ~~state~~ air very nutritious to vegetables; Secondly we have decided

proofs of its efficacy to that effect in animals, particularly to poultry, but more especially to hogs, and some other quadrupeds; and Thirdly; as we know the great nutritive quality of sugar, and Gum, and know also that carbone exists largely in the composition of those articles, so we may safely conclude it to be nutritious.

Of Calcarious Earth.

I am inclined to believe that this substance is classed among the Aliments, and from its universal range in the different kingdom of Nature I may safely assert that it is no very unimportant one. — Doctor Fordyce asserts that this affords no nourishment to the human body; he says that the solid fibres of animals consist only of Mucilage combined with water, that in the bones of animals and shells of fishes Phosphate of lime is deposited in the intestine of the mucilage, but it might be said that the mucilage is deposited in the intestices of the earth, they are both necessary to form the solid frame of animals; Calcareous earth constitutes an important part therefore of the human body; Its mere existance in these fluids is not however a proof of its necessity to animal life, for upon the same principle it might be said that Silex is a nourishing article since it has been in some plants; this however no one

will assert. — Silex exists in a detatched state in the Bamboo. It is insolvible in ~~water~~ the gastric state or juice or in the vessels of plants, without the assistance of Soda, and therefore cannot alone be nourishing to them. — The Calcareous earth which appears is diffused over the surface of the Earth, is thought by some naturalists to be entirely the production of animals, the strata of this earth retains frequently impressions of animals and vegetables, but it is frequently destitute of them entirely. — I must therefore differ from the above opinion. ———

Calcareous Earth is the principle part of food of shell fish, and of sea birds, they very commonly swallow bones. — The Canary Bird requires calcareous earth during the time of gestation, and if it is not given to them they die in labour, Siliceous earth will not answer the purpose here. Dr Thompson thinks the Calcarous earth necessary to form the Testa or Shell, if this were so it would be an argument in favour of the article, and consequently of its nutritions quality, but I do not entirely agree with Dr. Thompson. — Linnaeus says the Laplanders make a Bread of the Bones of fishes, mixed with ~~the~~ resinious matter from the Pine Tree, It is said that a Nation of

South America, eat a large quantity of Calcareous earth, and from its being Nutritive to vegetables, we might suppose that it would be so to animals also. Reasoning from Analogy, however does not conduct us to a certain and disputable result, but we are very apt to reason in this manner, and perhaps, with propriety, for the causes which support life in vegetables, are very much the same with those in Animals; the circulation in them is supported by the same kind of irritability that continues it in animals. — I cannot say in what manner calcerous earth is nourishing, but I know it is actually so. Lime makes a good manure. Dr Darwin recommends a mixture of Lime, and Oak Bark. Lime attracts moisture to it, and makes crops better, but not only is it beneficial to plants in this manner, but is also of itself actually nutritious to them. — It has been doubted whether the lime is dissolved by the vegetables, or formed by the vessels of the plants; I believe that the power of forming Iron and lime resides both in plants, and in Animals. — All plants in all situations contain the same principles; and Mr Dessaussure a Swiss Chemist has found by analysis that plants growing in Calcarenous soils, contain a large quantity of lime; Plants absorb largely many articles, as solution of Copper, Iron, Lead, and Arsenic;

They also, as has been said and proved by experiments absorb calcareous earth, and are found to be finer in a Calcareous soil, to this circumstance I ascribe the superiority of the British Oak, and when our Country begins to build a Navy, we should be careful to cut the timber from Calcareous soils. From what has been adduced it seems pretty evident that our article has not been misplaced under the head of Aliments.

Of Water.

That water is one of the most Nutritious and necessary of Aliments is a fact that needs no proof for its complete establishment. It is used by every creature, and by some in considerable quantities: It alone has supported many Animals for weeks and Months together, and a case is recorded of a man in England who lived exclusively upon water for three weeks. Wolves also frequently subsist for a long time upon water. Fishes, which we know to be rapacious, will continue alive a long time, for weeks, Months, and even Years; without any other nourishment than that from the water, which contains them. An Experiment to prove the truth of this has been made, and established beyond a doubt the Nutritious property of water. Three Gold fish from China, were put into a vessel filled with spring water

slightly impregnated with Epsom, and other Salts. The water was at first changed every day, but afterwards permitted to remain three or four weeks. The Fishes lived fifteen Months in it and were increased considerably in size at the end of that time. In some distilled water, some more fish of the same kind lived for six months, though in a corked bottle, growing and emitting faeculent matter.

Many Snakes live very long without any thing but water, I have now a Rattle Snake, which since last April twelvemonth, has eaten nothing except a young bark: Some vegetables live and thrive and thrive in distilled water without any foreign nourishment, and they yield the same products with those of the same kind, which grow in other situations. Others appear to live almost upon what they imbibe from the atmosphere, as in Africa where plants are known to thrive in, what are called the Clay fields, where except slight showers for two weeks, they are exposed the whole year to a continual and Scorching sun. Succulent plants frequently appear in high and very dry places, and suffer in Gardens from the moisture they find there.

Of Light.

As light is without doubt useful in the circulation and in respiration, we may safely say that it is also Nutritious. — I do not assert that it is entirely necessary to life; we have many melancholy proofs to the contrary in the numbers of People who pass their lives entirely in mines excluded from the light of the day. The process of Secretion, Digestion &c. may be carried on without light, but certainly not in a perfect state. — The Beauty, and expression of the human countenance is very much affected by it, and those who pass their lives without it have a melancholy expression in their looks. As we are on the subject of light it may not be improper to speak of its influence upon vegetables.

As light is preventive to germination, so that if we wish to keep seeds without their germinating we have only to keep them from light; the seed is buried in the ground, but the moment germination has taken place then light becomes necessary, and can be rarely dispensed with. It is related that in a Cellar where potatoes had been placed, one which had escaped notice, after some time began to germinate, and shot forth in the direction of a feeble ray of light, which was daily admitted through an aperture in the wall at about 25 feet distance from it; it travelled on towards the light, and finally went out through the hole.

Plants which grow in houses are found to incline towards the window, and the various kinds of Lupin in the open air turn their leaves to the sun. Asparagus grows most vigourously in a South exposure. Light promotes absorption in all vegetables, if two hyacinths of an equal size be placed in the same quantity of water, cæteris quamtum paratus, that which is exposed to the light will absorb the water much more readily than the other which is deprived of Light.

Light produces great effects upon the colour of vegetables, without it the most beautiful plants would be nearly devoid of colour. The light colour of vegetables in the shade is perhaps owing to their not throwing off oxigenous air, which they are unable to do without the agency of light: In the light, plants are green because there, they are enabled to throw off oxigene. — The shoots of the potato when exposed to the light is green, when blanched as we call it for table use by depravation of light assumes a pallid colour, such as Linnæous terms insipidus. — It must not however be supposed that all vegetables shew light to be thus ~~thriving~~ necessary to their thriving.

The fungus plants, such as Mushrooms, toadstools punk &c, are instances of exception to the general rule. — Mushrooms are known to

grow in the mines of Germany, of a pink colour; From this it would appear that all plants do not bear, or at least do not require the stimulus of light and air. — Baron Hembolt, observes that subterraneous plants do not grow in the air and light of the atmosphere; perhaps this is owing to their fibres being too sensible of the stimulus of Oxygene, which prevades the atmosphere; many of them have nevertheless the most gaudy colours. — Mosses, and other plants which grow in Elevated situations, Three Thousand feet above the Sea, do not thrive in gardens. — Professor Pallas procured some plants which grew on Mount Caucasus, and Baron Hembolt some from the Mountains of South America at the same time; but neither of these Gentlemen could induce them to grow on level ground; from the density of their new atmosphere compared to that to which they had been accostomed; and they died from excessive stimulus; when however they were placed in an atmosphere containing a greater proportion of ~~terr~~ they flourished. —

Baron Hembolt has made the same observation respecting plants on the Mountains of Peru. — Pole the traveller says that the air of Mountains is less pure than the common air of the atmosphere. —

Not only the Colours of vegetables

but also their tastes, and smell, are under the influence of light. Flowers which continue open during the Day and Night afford more odours in the day time; than when deprived of the genial influence of light. Some plants however bloom only in the Evening.

I have said that light also affects the taste of vegetables: Those individuals of the different species of poisonous plants, which grow in the shades are generally inert. — The hemlock, growing in mines is nearly inert, thus I believe that one grain of the extract prepared from the green leaves is nearly equal to twenty from the pallid ones. — The green leaves of the Narcotic plants should therefore be collected from places which are exposed to the influence of Solar light, but the Digitalis is a remarkable exception to this rule; and it seems to be potent in proportion as it is well shaded: That growing in our gardens is apt to be inert. Sunny places then should always ~~then~~ be selected to plant these plants, the Fox glove excepted

We now proceed to take a view of the effects of light upon animals. — Those of them which in a State of Nature are black, when excluded for a long time from the light become of nearly of a white colour. — There are insects which live for

their lives under ground, and during that time are destitute of colour, but after leaving the ground and coming into the air they assume their natural colour. The locust a very short time after leaving the earth, in a few minutes assumes its proper colour, the same observation is applicable to the tree frog, this changes from a Yellowish to a dark green.

Children born of Negro parents are not black. For the blackness seems to arise from the combination of the air with the basis of the black colour in the Rete mucosum; this is probably carbone, and combines with the oxigine, the combination is accelerated by the agency of light; the Children of our American Indians are nearly white at birth but in a few days become of an olive. Negro Children assume a much darker hue when exposed at first to a strong Solar light; I think that a Negro-child born and bred in the mines of South America, would be much whiter than otherways.

The agency of light upon European skins is proved by Tan and Freckle. These effects extend farther than the Rete mucosum. A very important question has been the cause of much agitation and dispute among the learned! Whither the white Man and the Negro are specifically the same?

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I believe that the diversities in Colour, and in feature of the human race has been produced by the diversities of climate and the influence of light and heat; If however it should be hereafter discovered that there is any important difference in the structure of the body of the Negroes and the Europeans; as for instance that the fore arm of the former is longer (uniformly) than that in this respect he approaches to the long armed ape, then I may be forced to acknowledge that the difference is not wholly owing to the diversities of Climate, but to some original difference in their structure.

These sentiments, Gentlemen I could not wish you implicitly to adopt, but would advise you by all means to think for yourselves, and it would give me great pleasure if any of you by your future investigations should more completely illustrate the subject.

Of Milk.

Milk in some respects bears a considerable resemblance to water, like this it is liquid, and wets substances. It is also a little unctuous, and may be frozen. The freezing point of Milk is a little lower than

that of water, and the boiling point of the former is higher than that of the latter; the specific gravity of milk is also greater than that of water. — When this substance issues out of the breast of the female, it appears to be a simple homogeneous nature; but if it be left to stand for some time at rest, it discovers itself to be composed of different principles, which spontaneously separate from each other; these are uniformly found to be of an oily, coagulable, and watery nature, and are commonly denominated Cream, Curd, and Whey. —

Cream, or the oily part of Milk is the first that separates, it floats upon the surface, appears thicker than what is below, and is of an oily unctuous consistence, the cream will appear even in open vessels, but exposure to light and air in open vessels hastens the process of sepe = ration; and it will be still sooner if the surface be large. — When Milk is boiled, a more quick and copious seperation takes place, and the Cream which is procured is thicker than that which is formed spontaneously. — The oily particles are bought into contract with each other by agitation, and made to adhere

together.

Milk becomes an acid if it be exposed to the air after this seperation of the Cream, and at length coagulates; Warmth hardens these effects, as does also Thunder: The proportion of Cream, or to use the common phrase, the richness of the milk, varies in different animals, or in the same animal, according to circumstances. ~~~

One the Mountains of Switzer=land it is uncommonly rich; and where the female feeds upon aqueous vegetables, or those which have not had much light, affords comparatively but little cream. I know not whether the cattle of the Western settlements yield fower milk than those of the Atlantic states, but should suppose they would, on account of the greater degree of light in the latter, from their being more completely settled. They certainly require more Salt, than the Cattle of the Eastern States, probably from their food containing less of that substance. ~~~

There is also a considerable connection between the colour of the animal and the quantity of Cream in its milk. Thus it is said that Red Cows give generally more cream in its milk, than cows of any other colour. ~~~

The same observation is applicable to the females of the human race: The milk of pale women is less than that of dark complections, and women who have red hair afford a richer milk than any others. The milk of young animals contain less cream than that of maturer ones; but in old animals who are about ceasing from parturition it is less rich than those who are younger. A dry soil is of advantage to milk in this respect.

Doctor Cullen mentions a plant which grows in England called Mash dog, with the flowers of which milk maids rub their pails in order to procure a larger quantity of cream, and for the same purpose in Paris; as soon as the milk is drawn, a little white vitrol is sprinkled upon its surface, hence it may not be improper to mention the following fact. Some time since in conversation with an eminent brewer of this City, I informed him that I believed the different kinds of draught beer, porter, Ale &c. were impregnated with Strammonicum or some other plant of that kind, which would have a tendency to give them apparent richness, but which would render them exceedingly detrimental to those who employed them.

He assured me however that he was not in the practice of using any of those stimulants; but candidly confessed that he added a small quantity of the salt of steel, or sulphate of iron, to the extent of about ℥ij to a Butt of porter, which was sufficient to make it rish.

Cream is not a pure oily substance, but contains a portion of Curd and Whey; I do not adopt Doctor Cullens opinion that in churning no gaseous substance is disengaged, and that the butter can be obtain'd by the admixture of various substances.

I think that a greater change takes place in the operation of churning, and that some gas, perhaps the carbonic acid gas, is disengaged. By agitation too, the oily parts are brought into contact, act upon and adhere to each other, and finally I believe that before butter is formed, it combines with no inconsiderable portion of oxigene.

The Dairy women in Switzerland plunge their arms in the cream.

Cream in its recent state bears a very considerable resemblance to the expressed

oils of vegetables not only in its sensible quality but also in its component principles. Butter is however more consistent than any of those oils, owing I suppose to a mucilageous matter which adheres to the former. Butter is liable to become rancid, and this probably, not owing to any alteration of the oily particles, but to some other substance contained in it, for when it is well freed from butter milk it is much less disposed to become rancid than otherwise. When melted and suffered to remain for some time in a fluid state it deposits a sediment, becomes more fluid, and of course must be more pure, it certainly then is less liable to rancidity. What is the ~~matter~~ nature of the matter thus separated from butter, and what is the proper subject, I am not able to determine; but that it is probably, in part, at least to an acid but these changes take place, seems likely by the circumstance of the rancidity being promoted by the presence of buttermilk, and from the corosion of copper by rancid butter, a thing which fresh butter is not able to effect. — Butter probably contains in addition to these principles a

portion of Mucilage, between which, and the acid a fermentation probably occurs: this fermentation we do not properly understand, and therefore are unable to prevent the rancidity of oils, except it be by depriving them of their acid and mucilage. Butter may nevertheless be preserved for some time by adding to it some Sea Salt, together with Nitre and Sugar, a little of each; the rancidity will be very much corrected by washing the butter repeatedly in Alkohol. In the East Indies the butter is melted and washed in sour milk.

In a few days after the cream has separated, the residue coagulates, and the Aqueous parts are disengaged, and called whey. The whey, and the coagulum, which is termed curd, are both much used as articles of diet, particularly in the United States. This spontaneous coagulation is sometimes permitted in order to form a species of cheese; but cheese is generally made by means of an artificial coagulation. The article which is employed as an instrument is called runnet; it is actually obtained by filling the fourth stomach of a Calf with milk, which thence becomes coagulated, the

stomach with its contents are preserved in Salt and water for use. It has been supposed by some that the power of coagulating was proportionable to the quantity of acid which is contained in the stomach. — Doctor Young has proved however that the effect of coagulation is not to be ascribed to any acid in the stomach, but to some other cause. — This power is not peculiar to the Stomach of the Calf, but belongs to the same organ of other animals, even of birds. That an acid is not the cause of coagulation is proved by this fact; That the internal coat of the stomach of a Calf when dried, possesses the power of producing the same change upon milk, that it did when perfectly fresh; nor is it confined to the stomach alone, for the liver, the heart, and the lungs of the Turkey possess it in a small degree. —

It belongs in some measure also to some animals in a living state; Thus live fish coagulate milk, whereas dead ones do not. — Some vegetables possess the property of hastening the seperation of the causes from the serous parts of milk; this effect however is only produced upon cold milk, or by a cold watery infusion of them; the madder and common

thistle are examples of this. The leaves of the Persimmon and the caustic alkaline salts dissolve the caseous part of milk, the mild ones coagulates it. There are different methods therefore of producing a coagulation of milk. The common method however, and the best one appears to be that by means of Runnet. The capacity for forming runnet exists in the stomach and not the Intestines.

Cheese resembles animal matter in becoming putrid; the Coagulum is formed by acids, Alkohol, and heat. Cheese when distilled gives out volatile alkali; this however would not be of itself sufficient to induce me to believe it to be of an animal nature, because some vegetables when distilled afford the volatile alkali, as the Horse Raddish, Turnip, and others. Some vegetables even yield proportionally more than animal matter.

Chemists however are not unanimous in the opinion that cheese affords ammonia. Doctor Ferris appears to think that in the experiments to prove this, Old Cheese has been used, and it is well known that this contains animalcula. I think at least that cheese bears a greater resemblance to animal substances than any other part of milk.

It appears that the different quality of Cheeses (or whether they be rich, or poor &c) are to be ascribed to the milk itself, to the animal from which the milk has been taken, and to the different methods of preparing the cheese; Cheese by distillation ~~and~~ ~~empyreuma~~ affords, besides the volatile alkali; carbonic acid, and an empyreumatic oil, leaving a carbonaceous residum which contains potash, or Soda. —

We shall now pay some attention to the Sexum bartis, or Aqueous parts of milk. — Water enters into the composition of all milks, it seperates spontaneously, or artificially from the other plants, and in some cases, according to Doctors Hoffman and Young, it constitutes seven eights of the whole mass; Its nature is different in different instances, though it varies less than the oily parts, it is affected by a variety of circumstances. — If it be seperated by the means of Runnet it will contain a small proportion of caseous and oily matter; but if it has been left to seperate spontaneously it will be free from either of these substances; Buttermilk contains the watery, oily, and caseous parts. — Whey differs also according to the animal from whence it has been taken. — It contains likewise a Saccharine matter ~~of~~ which is found to be a true

Sugar.

The process of forming it consists in depriving the Whey of its cream and curd, and evapourating it to the consistance of honey. — it is then put into moulds and dried in the sun. It is afterwards dissolved in water, Clarified and set to chrystallize. — The Sl Crystals are the same with common sugar, and forms with the alkalies neutral salts, and is solvible in four times its weight in water. Its combinations with the alkalies are insolvable, but this is not the case with those which it forms with the Earths. — Sugar of milk is composed of two acids, after the salts contained in it are seperated, the whey concretes. — The substance is the same in all animals, but exists in them in different proportions, as one in Asses milk, as two in Mares, and as three in that of womans. — —

The milk of Cows, is composed of water, Curd, oil, Sugar of milk Muriate of Soda, and muriate of Potash, and a small quantity of Iron; the milk of women is sweeter than that of Cows; and contains a greater quantity of cream; the former eat more animal food, than the latter, and their Creams is whiter. — The milk of ruminating animals contain a larger proportion of caseous matter than that of other animals. — —

I now proceed to the manner in which milk is produced in the female sex: The common opinion upon this subject is taken from the resemblence it has been supposed that the chyle is carried directly from the Thoracic duct to the mammae of the females, and these assumes the form of milk; To this purpose certain vessels are said to be approximated which have hitherto escaped the prying eye of the atatomist, but this doctrine, however common, I cannot admit, for in the first place, it is not at all probable that the chyle, after passing into the blood vessels remains for any length of time unmixed with the blood: And with Doctor Cullen I judge that there has been much mistake in observations, which would lead us to conclude, that it has been found in an unmixed state in the blood, soon after the introduction of Aliment in the stomach. There might have been some morbid appearance in the blood, upon which the observations were made, which might have given rise to the mistake.

It is indeed almost impossible that they could be correct. It is a long time after food is taken into the stomach, that it enters the Subclavian Vein, in the form of Chyle, and then only

in small portions at a time, and is therefore immediately blended with the mass of blood; the diffusion encreases as the whole is carried to the right ventricle of the heart, and in this, as well as in the subsequent passage through the lungs, and left ventricle of the heart, the whole is acted upon by powers, which must blend and diffuse the chyle, in the most minute and intimate manner, amongst the parts of a highly coloured fluid.

These circumstances must therefore render it impossible that the chyle should be perceptible in the blood when drawn.

The supposition then that the milk is especially afforded by the chyle in the same condition in which it is received from the Thoracic duct into the blood vessels, passing to the mammae of females, and these given the same matter and qualities we perceive in milk, is very illy supported, by the chyle's remaining suspended from the other parts of the blood, for some time after it has been taken into the blood vessels. How much soever of the food recently taken in, we shall find going to the production of milk, we shall find it very improbable, that chyle takes that course in the same form, and in the same crude state, in which it enters the blood vessels; and it will be found much more

probable

that milk is produced in the mammæ of females, by the peculiar, and mysterious powers of secretion. In arthritic cause I think that part of the milk is more especially afforded by chyle. ——

It has been alledged that purges given to the Mother affect the sucking Infant. one grain of Calomel administered to the Mother produces a greater effect, than the same quantity, or even two grains given directly to the child. This small dose cannot be absorbed into the circulation and produce those effect. — When however the article is taken in such quantities as to form an article of diet; I think that it is absorbed. — It has happened that Mercury given with an intention of salavating the mother, has produced so violent a salavation on the child as to occasion its death, although it had very little intercourse with the mother except when at her breast. ——

The facts which I have mentio= =ned are not to me convincing proofs of the absorption of the article, for the atmosphere of the room in which one person is salivated is capable of producing a similar effect upon another. Still however Mercury, as I said before, is in certain cases absorbed into the circulation: Doctor Hamilton is said to have detected globules of Mercury in the milk of=

a woman who was taking that medicine. Doctor Young who was very intent upon the enquiry, never found Mercury taken by the mother, to effect the suckling; and Doctor Cullen says that in fifty instances, which he has known, the child was not affected by purgatives given to the nurse. He adds that he has known children to suck from Nurses who were in the practice of a frequent and excessive use of spirituous liquors, without being ever intoxicated; This last has however been disputed by some other Authors, who adduce facts to prove the contrary. Dr Penis mentions the following fact which he had from unquestionable authority.

A Lady being of a weakly constitution, put her child to the breast of a woman who afterwards proved to have been a great drunkard. The child did not progress so rapidly as is common, and the Mother changed its nurse; she now discovered the womans failing, and found her Infants health to decline notwithstanding the change of Nurses; its stomach having been accustomed to the stimulus of the Brandy; which was contained in the Nurses milk, was unable so suddenly to do without it: The Lady therefore mixed a little brandy with its food and

diminished the quantity of it gradually. It soon recovered health, and grew rapidly. There must I think be some foundation for these facts, but in my opinion they are to be explained without supporting any absorption of these intoxicating liquors.

The secretions of Milk is universally encreased by the taking in of Aliments, and abstinence evidently produces a diminution of it. Liquids possess the power of encreasing the quantity more than solid food. Cullen mentions that he has known some Nurses who were naturally free from thirst, but upon the application of a suckling to their breast, felt an immediate wish to drink largely. Women frequently become costive after beginning to nurse, and this phenomenon is ascribable to the increased action of the intestine absorbents.

The oily and coagulable parts of Milk may be drawn from our diet, and so also I think may the Saccharine; for I am inclined that the sugar of Milk enters into the composition of our articles of diet. Bergius discovered that Vinegar coagulates the milk of herbivorous, but not that of Carnivorous animals. The ~~Physi~~ Physiology of the Fluids has been lately too much neglected: A course of vegetable diet makes the urine less acid than one of animal food. — The quantity of milk depends much upon the Vegetables or other ailment which the animal

yielding

it has taken in. The Taste and colour even of some vegetables is communicated to the milk of Cows, and that of women, Madder colours both, and the Horse Chesnut give a bitter taste to that of the former. We now proceed to consider Milk as an alimentary matter, and as an article of the Materia Medica. Milk nourishes all Young Animals of the class Mammalia except the Porcupine, but as I have dwelt rather at length upon the subject already.

The first production of Milk being always cotemporary with that of the offspring, the organ affording it being well adapted to the method in which the infant procures it, and the new born animal being instinctly directed and instructed in sucking leaves no doubt that Nature intended this milk for its nourishment. It must I think coagulate in the stomach of the child before it is digested, and we find that some of the healthiest children yeild, or eject, curdled milk

With respect to the time a Child should be allowed to remain at the breast, authors are not unanimous. Doctor Cullen is of opinion that the proper limit is the termination of the Seventh, or Ninth Month after birth

While Haller observes that Children who are permitted to suck very long are generally very healthy; Cullen thinks that sucking long dispofes the constitution to Ricketty complaints. Among the Indians however, whose Children continue remarkable long at the breast, the disease of Ricketts is unknown; they do not however walk as soon as is common with our Children, their Parents tie them fast to boards in order to cary them more convenently, Children at the breast use a deal of exercise for their feet are in almost continual motion. — Doctor Cullen was also of opinion that a vegetable diet should not be allowed to Children untill they had arrived at the age of five Months, and that the quantity should be gradually increased. — I would however beg leave to differ from him, since there are many farinaceous matters which in my opinion are highly proper. —

It is needlefs to stop here in considering the alimentary nature of milk as it respects adults and people of all ages. Daily experience convinces us that it affords a great deal of nourishment, and it would be but wasting time to dwell on this particular, we therefore leave it, and proceed next in our enquiries concerning the article as a medicine. —

As milk is in my opinion more easily formed into chyle than any other substance, so it appears to me to be particularly suited to cases of extreme debility; where there is a vitiated state of the fluids, I think it also one of the most proper medicines that can be used. In scurvy I believe it extremely salubrious, and when joined with a vegetable diet, I think it would have the effect of preventing the disease where there was a disposition to it.

In scrophula it does not appear to me to be productive of good effects, this disease is not, I think, properly or perfectly understood, we only know that it is a disease of the fluids. I believe it is common among the North American Indians, who after leaving the breast use a smaller proportion of milk than other Nations.

Scrophula is however more common also in the Country than in Cities, and this may serve to counteract the Idea, which the frequency of the disease among the Indians may produce, I mean the idea that it was induced by abstaining from milk; The fact probably is that milk has little or no effect in preventing, or curing the disease under question.

Milk has been judged well adapted to the disease of Pthesis Pulmonalis.

In the progress of this disease the Physician should endeavour to reduce the action of the heart and arteries to be well adapted.

I do not however consider the article as useless in every species of this Phisis pulmonalis; on the contrary, I think it injurious in the florid consumption, as having a tendency to increase the heat of the body, and also the Plethora.

In the Phlogistic diathesis of the system I believe a pure vegetable diet to be more proper than any other, it has been imagined that in Phisis the milk of Asses is more than that of any other animals, but I believe the several kinds of milk differ but very little from each other.

Though I think that gout is often founded in a plethoric state of the system, yet in this disease I believe milk to be useful; I will not however go so far a Doctor Cullen has done, and say that milk is capable of preventing the gout, he says that it cannot pro= =duce Plethora, but in my opinion it may be induc'd by any substance which is nutritious; I do not con= =sider milk as a proper article of diet for a Sedentary adult: If there is any thing which is able to pre= =vent hereditary gout I belive that it is very different

from the drinking of Milk. Even labour is not found to produce this desirous effect. Though a vegetable diet and the use of milk may moderate the paroxysms of gout, yet they will never effect a cure. — Doctor Darwin obseves that it is of no importance upon what diet a person subsists; if he be addicted to the use of Spirituous liquors. ———

There is a connection between gout and Calculus, and milk has therefore been recommended in calculus complaints Cyprianus is one of the advocates for this practice: I think that Calculus and Nephritis happens in persons who subsist upon vegetable diet. ———

In Epilepsy milk is very useful in conjunction with a vegetable diet, but I do not allude here to the plethoric Epilepsy, here I disapprove of milk as an article of diet; from having personally experienced its bad effects. Drink is only proper in Epilepsy of persons of a thin, and spare habits. —

Of Medicines.

I now proceed to treat of that branch of the Materia Medica, properly so called, and which is unquestionably the most difficult part of the science. — I do not think it necessary to apologize for beginning with the Class of adstringents, or as they are commonly called Astringents

I shall designate them by the former of these appellations as being more classical than the other; Some writers upon the Materia medica have wished entirely to abolish this class of medicines, but there are in my opinion some substances, to which the term is more applicable than any other. Hereafter perhaps I may discard it, but the utmost caution should be adopted in ~~absorbing~~ abolishing of changing scientific terms: The French Chemists set about their new ~~Nam~~ Nomen=clature with so much ardor as to produce many new names, which are no better, if indeed they are as good as the former. — The term azote for instance was applied to that gas which was called mephitic, phlogesticated air &c. Azote however signifying destructive of life is equally applicable to all the gasses exigene; besides this it signifies destructive of the life of all animals with=out exception, and this has not yet been ascertained. It signifies also distructive to life of all kinds, which the French Chemists themselves thought it proper to — the life of vegetables. — Many other instances I could mention, but will only say at present that this Nomenclature will not be immortal. Doctor Darwin not liking the terms adstringentia and Tonics substituted that of Sabentia. At present however I shall treat of this class (adstringents) though hereafter I may discard it. My idea is that

this

this assortment of medicines should be placed under the head of Tonics, that these should be divided into three classes: The first comprehending the pure adstringents, as Galls, Alum &c. The second the pure bitters without any adstringency, such as Colombo, Gentian, and the pure bitter principle as is generally called; and the third class embracing those medicines which possess both these properties, as the Chincona, Dogwood &c.

Of Adstringents.

"Adstringents" says Dr. Cullen are such substances as when applied to the human body produce a contraction, and condensation of the solid living fibre; thereby, ~~condensating~~ increasing its density and force of cohesion, If applied to longitudinal fibres they diminish their length, but if to circular ones they diminish their diameters, he seems to think that they act chemically upon the animal solid, that the operation is owing to an attraction subsisting between the adstringent, and particles of the animal solid.

I am not I confess satisfied with this Theory however ingenious, altho I am incapable of offering a better one to your consideration.

The action of adstringents is not the same in living as on dead animals, this is properly

and fully proved by the operation of Tanning, I believe that some skins are put into the vat, before they are already and unequivocally dead, and on this account we frequently find sloughs in the skins after they have been tanned. —— The infusions of Oak bark, which is generally used in making leather contains two principles; The tanning, or adstringent, and extractive. The former exists in the Nut gall of Alleppo in the proportion of two thirds of the whole, this is soluble in water, and still more so in Alkohol, the solution being of a brown colour.

When the animals hide is put into an Infusion of Oak bark, it extracts these principles, a Chemical attraction takes place in the hide, it becomes firmer, stronger, and the putrefactive process is stopped, it becomes heavier and acquires the taste of the tanning substance.

Adstringents are antiseptic and animal substances may be kept much longer in them than in pure water. —— The living body according to Mr Davy is impervious to adstringents, however long they may be employed the ~~exx~~ epidermis would not be tanned; I do not deny however the absorption of a portion of the adstringent; this has been proved by Doctor Massey. I believe however that the quantity absorbed is very small, and I think insufficient to act on the glutinous fluid

of the body, as it does on animal fluid. Doctor Mafsey has proved that Madder and its colouring matter was absorbed, but very little of the adstringency is proved to be absorbed, besides which, madder is a very weak adstringent. Human bodies have been found in solutions of adstringents matter completely tanned, and not in the least putrified; I saw one case of this in New Castle England, in which a human body had lain for half a Century completely tanned and not the least putrified. — Many Animals pass their winter months in water impregnated with Oak bark, they have not their skins affected in the least manner. — I have made one experiment on an animal of a delicate texture of skin with the same result. — Bark does not appear to me to stop the progress of gangrene by virtue of its adstringent property, for I think that it acts only upon the sound parts. — Mr. James Moore asserts that the adstringents do not produce contraction of the living fibre when externally applied; but in this I must differ from him, because a piece of alum applied to the tip of the tongue evidently contracts it, and induces a corrugation of the whole mouth. Doctor Darwin however attempts to explain this fact upon the principles of an abortion of Salvia, but this explanation does not seem to be just, and if not, so his term

Sorbentia should be abolished altogether. ——

Adstringents produce also considerable effect upon vegetables; Physicians have thought that they affected ~~that~~ those parts of the body only to which they were immediately applied, and therefore they have been so sparingly used. They are however capable of affecting different and distant parts, perhaps through the medium of the parts or nerves; They are very useful in hemmorhage of the Uterus, lungs, and nose, as well as of the Primæ Viæ. — They occasionally are absorbed into the circulation, but this is in so small a degree as not to explain their effects, and the rapidity of their action, as in the action of the peruvian bark and Sáccharine Saturni. Their effects depend upon their general action upon the stomach, and from thence propagated to the different parts of the body, this is asserted by Boerhave. — In the Stomach they produce a contraction of the Pylorus, and two ounces of an adstringent stopped it up altogether for a time, and prevented the contents of the stomach from passing into the solution. When externally applied they coagulate the surface with which they are in contact. ——

The adstringent principle is said to consist of an acid, and an earth. In the adstringents of an acert taste says Doctor Cullen, such a composition seems to be evident; and the supposition is confirmed

by observing that an adstringent quality is produced by certain compositions of acid and earth, as in the case of Alum; We must not however says Doctor Cullen – for I have quoted from him conclude this to be a general proposition, as in many cases a combination of acid and earth produces matter of very little adstringent power, as happens in the case of acid, ~~and earth~~ ~~paradoxes~~ joined with calcerous earths, and in one case an acid joined with an absorbent earth, as in Magnesia Alba produces matter of a purgative quality".

Their professing a purgative quality is however no proof that substances are not adstringents, because Adstaingents are under many purgative circumstances and vice versa.–

Cullen says that he cannot admit as a general proposition that an acid and an earth form the adstringent principle.

We detect an Adstringent in the first place by a sence of wherever it is applied especially if it be on the tip of the tongue, this extends over the mouth This is an error.

In many vegetable adstringents we cannot detect the presence of an acid; but all now agree, that an acid enters into the composition of this principle.– This acid is obtained in large quantities–

quantities from the common galls, and is therefore called the gallic acid, this is also the case with the bark of many trees, as of the oak &c. The roots also of many plants contain it. Some species of Sumach contain it in a greater than the galls, the acid reddens blue vegetable colours, it unites with the acids and forms salts. — The Chemists have proved that the adstringent principle consists of this acid, and a Salive matter. Cultivation deprives vegetables of a great part of their adstringency, that is the case with the potato, and many Cerulici. Doctor Woodhouse thought for some years that the adstringent principle was a gallate of Alumine; he afterwards thought that it consisted of the combination of some other acids with alumine, at the least he seems to think so in his edition of Chaptal. —

Doctor Walker proved that this principle did not consist only in the combin= = ation of the gallic acid and alumine, but of that acid with Magnesia and some other earths. We are certain however that the gallic acid is not the only acid which enters into the composition of the adstringent principle. —

We detect an adstringent in the first place by a sense of wherever it is applied especially if it be on the tip of the tongue; this extends over the mouth. — Doctor Cullen says that the degree of this constriction may serve as a pretty good test of the quantities of the —

quantity of the adstringents virtue residing in a plant, and his opinion is probably a correct one; In the second place we detect an adstringent by applying it to a solution of green vitriol, from which it will either throw down a blue or black sediment. This we suppose is occasioned by the adstringent attracting the acid from the iron with which it was formerly connected, and that the iron therefore falls down in a black powder. Doctor Woodhouse lately supposed that pure sulphate of iron did not strike a black colour, but that it was owing to the ~~presence~~ presence of an oxysulphate; this however was incorrect: a pupil of mine made some green vitriol from steel and a very pure acid, the crystals were perfectly formed, and no appearance of oxygenation upon their surface, and yet they threw down a black colour with the adstringent principle.

I do not however pretend to say that the oxysulphate does not produce a more intense colour. The latter test is of greater importance in a chemical, than point of view, because the quantity of the sediment is not in proportion to the effect of the adstringent on the animal; Common sage produces a deep black colour, and common tea strikes a deep blue

or black colour, and yet neither of them exert much effects as adstringents on the system. — I shall conclude these observations by a few remarks on the pharmaceutical treatment of adstringents. —

I think it may be considered as a general rule, that all adstringents made use of in practice should be administered in substance, in order that they may be dissolved in the gastric juice, those which are unsoluble in that liquor, as resins, may be mixed with a small portion of gum, or extractive matter as liquorice, as these appear to render them completely soluble; the same effect is produced by the addition of Alkohol. It would be perfectly useless to give such substances in the entire state, without any thing to assist their solution in the gastric liquor; because being utterly insuble in this fluid they could produce no possible effect. — Six, or Eight grains therefore of the resin of opium exhibited alone would ~~produce~~ prove entirely inert. — Although the solid form is generally preferable to any other in the administration of these medicines; yet sometimes the system is so debilitated, or the stomach so irritable that they are rejected by that important

organ, and are therefore necessarily exhibited in solution. They readily give out their qualities to water or spirits of wine, and given through the medium of these in three different forms: viz In Infusion, Decoction, and Distillation, the second of which is generally the best, but as adstringents do not give out their virtue by distillation, the distilled waters from them are absolutely inert. The best method of extracting the virtues by Infusion, is to pour boiling water on the substances, then stir and strain immediately. — Decoctions should be performed in close vessels to prevent the volatile parts from escaping. I seldom exhibit decoctions, because they are generally made in open vessels, and thus loose much of their virtues, and I am inclined to think that a kind of de composition takes place in the operation. Dr. Cullen was of opinion that the cold watery infusion extracted the virtues of ~~Medicinal~~ vegetables in a more undecomposed state than any other. The adstringent principle is soluble, and it has been supposed that in some diseases this menstrum would be very useful.

I doubt the propriety of this opinion, because very little of them is carried into the circulation, and they dont appear to act in that manner. —

Intermittent - Ast

Debility

Escape in Evacuation

Diarrhea

Leucorrhea

Veget. Amin.

R. d-

3 iii. Cortex - quinc.

Sem - gs = 3 ß - Galla. Men - abcot

Of the Diseases in which Adstringents are used.

In all ages, and in all countries adstringents have been used, and used successfully in Intermitting Fevers. These Fevers being known among all Nations, and at the earliest periods, no doubt introduced the knowledge of adstringents, and their efficacy. The purest however have not been found to be so useful as those in which, with their adstringency, some other property is united such as the bitters or aromatic.

In all cases of general debility they have been long used, and probably with some success. Antiquity does not however prove the propriety of this practice, and I think that in many cases the adstringents have been used much at random, and consequently to the injury of the patients.

In the state called Cachexy and which forms the beginning of Dropsy, I think the articles we are treating of very often admissible, especially when the disease is attended with febrile symptoms, but this term is too general. The adstringents ought here to be used when the fever goes off. They are however in such cases often injurious. I have used Bark with advantage in Dropsy combined with fever;

we should be cautious of the use of adstringents in this disease, because it is very often prevented and cured by the debilitating plan. I have seen a case of hydrocele of the Tunica vaginalis induced by a gouty affection. This by means of Sinapisms to the feet, and blisters, was brought into the extremities and the hydrocele rapidly disappeared. In this case the hydrocele was preceeded by great pain contrary to the general rule. On this subject I shall treat more fully, when treating of the Peruvian Bark.

Adstringents are considered as especially useful in restraining excessive evacuations, and in the first place hemorrhages or evacuations of red blood. Cullen says that there is no practice in which he has been more frequently disappointed than in this, and this he supposes to be owing to their being unable to produce sufficient constriction in the stomach. If there be a foundation for the division of hemorrhages into active and passive.

In using the term passive hemorrhages I do not mean to say, that in them there is no encrease of action, but that there is a great difference in the quantity of stimulus.

I think adstringents would be very useful in the latter species, for in the former

there are not many adstringents which would not constrict the extremities of the vessels in such a manner as to overcome the action of the heart, and arteries; and therefore adstringents being generally in some measure stimulants, particularly the preparations of Iron and Copper, would undoubtedly encrease the flow of blood;- This I infer from their being so frequently ~~[illegible]~~ cured in my hands, by bleeding &c. ——

Some adstringents however as the Saccharum Saturni are capable of producing this constriction. — The Sugar of lead is undoubtedly an useful medicine in hemorrhages from the stomach and Intestines; In such hemorrhages bleeding is extremely useful. — In hemorrhages from the Nares of the nose the Sugar of lead is also very useful. — In short adstringents are the most indispensible articles in many cases of hemorrhage. —

Although the causes of Diarrhœa and Dysentry are frequently the same; yet each requires a different mode of treatment, Nevertheless adstringents have in both diseases been injudiciously used. — While Diarrhœa consists in an increased action of the exhalents and excretories in the internal surface of the Intestines, which may be restrained by the application of adstringents. ——

Dysentry says Dr. Cullen consists of

an encreased constriction in a considerable portion of the intestinal canal which must be augumented by the exhibition of adstringents, I am not satisfied with Doctor Cullen's Theory of Dysentry. It probably consists in an Inflammatory state of the membranes of the large intestines, and this must evidently be encreased by most adstringents. I do not mean however to give it as my opinion that all adstringents are inadmissible in recent Dysentry; for here such as do not encrease the tone of the vessels may be of use, and that not by their purgative quality; Many adstringent fruits are useful in this disease. — It is the practice of some Physicians to administer Bark in Dysentery, and to rely more upon this than upon any other remedy. I think it might be useful when it purges in recent Dysentery. All Physicians recommend the use of adstringents in Diarrhoe and they are often useful. This disease frequently arises from a lax state of the intestines, then adstringents and the most powerful of them, may and will be useful; but it frequently also depends upon an encreased action, and it sometimes arises from contagion. In these Inflammatory Diarrhoes Adstringents are improper, but evacuations, Venæ Section, and blisters to the abdomen are very useful: Where the Inflammation is topical, and not indicated by the pulse, general bleeding would I think reduce the patient very much without doing much good. I believe then that topical applications would be very useful such as leeches and Cupping to the abdomen. ———

Gout attacking the intestines, as it often does, will produce a diarrhoea, and may be cured by Blisters and general bleeding, but this applies to the Arthritic diarrhoea in young men, and in inflammatory gout, for in old men adstringents are proper. In every case of Diarrhoea accompanied by an inflammatory Diathesis adstringents are improper. ——— In Leuchorrhoea Fluor Albus or Whites, a disease peculiar to the female sex, and consisting in a discharge from the ~~Uterus~~ Uterus of a white serous matter, which sometimes becomes of a Yellowish colour, and resembles the matter of Gonorrhoea, in this disease I say adstringents seldom fail; This I have asserted from my own experience; since I have used them with unequivocal advantage. — But even here however our Medicines frequently fail of effecting a cure. Doctor Cullen says that he has seen forty different remedies for this affection, and has known them all to fail in as many different cases; they are nevertheless, it is certain, much more efficacious than Cullen has represented; there are many cases in which I have used both vegetables and mineral adstringents with advantage; But the discharge is sometimes accompanied with fever, and it is evident that it is then kept up by an encreased action; this form of the disease Darwin calls Callidus, in which adstringents are hurtful; in that form unaccompanied by fever, or encreased action

named by Darwin Flour albus frigidus, they are highly useful. Leucorrhœa sometimes communicates in the same manner with gonorrhœa, and in this case adstringents internally are often useful. When it is of long standing, and no inflamatory action accompanies the discharge we may rely on our adstringent medicines.

In certain serous discharges from the Urethra of males, such as gleets, gonorrhœa &c. they are also much used in recent Inflamatory Gonorrhœa however they are improper, unless they are the very weak ones.

Physicians in general have relied much on the use of adstringents in Diabetes, a disease depending as is supposed, on the relaxation of the kidneys, and a ~~ga~~ colliquation of the fluids, but the adstringents I am apt to think sometimes do more harm than good; The drawing and pain, the irritated pulse, the heat of the stomach, burning and thirst, which generally accompanies Diabetes render it very improbable, that it is a disease of debility, it is more probable an irritation and encreased action of the heart and arteries, the kidneys of some persons who have died of the disease have been found enlarged.

Emetics are said to cure it, and I have twice cured the same Gentleman by a low diet, small

venae sections, and occasionally a gentle cathartic. Diabetes is in my opinion not unfrequently induced by gout. — Some of the adstringents, particularly Kino, I have used in Pyrosis or Water Brash with great advantage; I have used them very successfully in the distressing colliquative sweats, such as appear in Phthisis Pulmonalis. —

Adstringents are also used to relieve the distressing symptoms of Calculus, in the ~~urina~~ urinary system, and the Uva Ursi in particular; they relieve the symptoms without expelling or diminishing the Stone. — Doctor Cullen thinks they act here by absorbing an acid in the stomach; I cannot however think this a satisfactory explanation. — He observes that the Uva Ursi and other adstringents attach acid, and the alkalies which are not adstringents ~~attach acid~~, have a similar effect in relieving the intense pain which is produced by the calculi. — The Carbonic acid, however, the Aerated Soda, and the muriate of Soda which is saturated with acid, are also useful, and there is not found to be more acid contained in the stomach of those who die of calculous complaints, than in those who die from common diseases. — I think that adstringents do not act by ~~absorption~~ absorbing acids, nor by the Tonic power, the adstringent principle we know is of a Saline nature containing a due proportion of acid. —

Sometimes they may act by virtue of their adstringency, and I do not assert that they never expell small calculous concretions, for it is well ascertained that this is often their effect. — I now proceed to treat of particular adstringments, and here you will perceive that Doctor Cullen speaks of them under two classes: Namely the Vegetable and mineral, the greater part however of his mineral adstringents are placed under the head of Tonics — I shall only follow his plan in the general division. — — — — — — — — — — — — — —

Of Vegetable Adstringents

Nature has been particularly diffuse of the adstringent principle in the vegetable kingdom; Sometimes it is found in all the different parts of a plant, but more frequently in the bark, sometimes in the root, more rarely in the leaves, and seldom in the flowers; perhaps as Cullen says the harder the plant the more adstringent it is, but to all these there are exceptions. — I confess myself at a loss what method I am to pursue in speaking of particular adstringments —

Cullen has pursued the botanical affinities; but I shall not follow him; for in this arrangement the weaker and stronger are ushered in together without order; It appears of more consequence to place them in succession according to their degree of strength, beginning with the weaker, or stronger ones which I shall do.

Cortex Quercus — Oak Bark.

This is considered as the most powerful of the vegetable adstringents, as may be evinced in the process of Tanning — It has been much employed as an adstringent medicine, and commended for every virtue that has been ascribed to adstringents, whither internally or externally exhibited. — Doctor Cullen has employed a Decoction of oak Bark in slight tumefactions of the fauces, and to several persons liable on a slight application of cold to the prolapsus Uvula or the Cynache Tonsillaris: he generally combined with it a portion of alum and found the combination stronger then the alum alone: This professor informs us that he has used the oak bark — that is the English oak in powder to the extent of ℥ss every two or three hours to prevent the paroxysms of an intermittent, and that he succeeded:

* vide Cullen Page 25 vol 2d

other physicians have confirmed this by their own experience. The toasted acorns have been employed in Dysentery after evacuations, and in Diarrhœa.

The Barks of our American Oaks may be considered among our most valuable plants in cases of gangrene. I have employed the bark of the Spanish oak with as much success as the best Peruvian Bark; This bark has been much talked of, and as I said before, is considered as the most powerful. I do not approve of the common dye oak bark: it is apt to purge by containing a large quantity of extractive matter; the common white oak is more like the European than any of the American oaks. That of the Chesnut has been used successfully in Intermittent fevers by Doctor Roberts of Virginia, he employed it in large quantities, and found it equal to the best Peruvian bark.

Gallæ — Galls.

Every species of Galls may be considered as the habitation of an insect which punctures the leaves and lodges its eggs therein; It is produced by a small, short bodied, brownish fly with four wings resembling very much the common gnat; after the leaf has been punctured for about four months; if the excresence be opened the contents are found in form of a worm, though they are the work of an animal, therefore we consider them as entirely af-

a vegetable nature. They are excresences from the same Tree, and substances of the same quality with the bark we have just mentioned. — They are destitute of smell, but of a very styptic taste. The Galls yeild one of the most powerful adstringents with which we are acquainted, and it is said to be even superior to the peruvian bark. Alcohol is the best menstrum by which to extract their virtue. —

Galls are useful in Intermittents, and in other diseases where adstringents are admissible, It has been said, but improperly that they produce intestinal obstructions; joined with Colombo however or some other bitter they are useful in intestinal flatus. I have known the preparation of galls with Columbo to purge so much, that Laudanum was necessarily used to check the discharge. — The dose in powder is from a few grains up to ℥ i. The Galls of this Country are not so good as those of Europe: Doctor Kuhn however uses a decoction of our common galls or oak Apples in obstinate Dysenteries and Diarrhoeds. — Galls are also useful in Piles depending on tapor or relaxation. This affection is not uncommon to persons labouring under the bilious Yellow Fever; I have known persons under this disease with piles, who were never before afflicted with them, nor never since. —

In Scotland an ointment composed of equal parts of galls and hogs lard is used for the Piles, and when the disease is situated so far up the rectum as to be out of reach of the ointment, they inject an infussion of them. — Doctor Cullen has proposed to use part of galls and of hogs-lard in the composition of this ointment, but this I think too weak and the former too strong. — There is a species of Piles depending on torpor and relaxation, occurring in people in the decline of life; and this is the species in which these galls are useful. — When Piles are accompanied by an Inflammatory action, bleeding and purging are necessary, and the galls improper. — Piles very frequently accompany the yellow fever, Riverius has spoken of a ~~hemorrhage~~ hemorrhidal pestilential fever, and here our medicines are also not proper. Galls are useful in gleets; — Mr has recommended them here, and I recommend his works to you, for I think it the best practical one upon the subject. — In gonorrhœa our medicines are also useful, and when used in weak solutions they are of evident advantage in any period of the affection. — They have been found successful in cases of very obstinate Diarrhœa which resisted every other article. When applied to a denuted muscle,

or even enveloped in the cellular texture, they destroy the life of that muscle, hence they are to be used cautiously.—

Vicus — Mistletoe.

This is more worthy of attention in Natural history, than as a medicine. It is a parasitical plant, of a bushy appearance upon the trunks and branches of different trees, as the oak bark, the apple, the gum &c of our Country, and it injures those trees upon which it grows; this therefore is a proof of the power of the vegetables in the formation of its fluids, and of those principles which they may contain; such as lime, Iron &c. It possesses also the power of absorbing some colouring matters, from the plants upon which it grows, and may be propagated upon the bark of any tree, by rubbing its berries upon that bark. —— The Vicus absorbs colouring fluids which are presented to it. — It has been held in a higher degree of estimation than it justly merits, and perhaps owed no small portion of its former fame to the veneration paid to it by the antient Druids —— Its virtues reside chiefly in the bark, and this should be given in substance in doses of from ℥ss up to ℥i.

The Mistletoe has sometimes cured quartan fevers when given in large doses and persisted in a long time. —— It is said to have been useful in Epilepsy, and when the disease proceeds from what Cullen calls the uncommon mobility of the system, it may be proper. — Such Epilepsies as these which

Doctor Cullen mentions depending upon uncommon mobility, accompanied with Debility, and not arising from any organic affection were owing to the fanaticisms of the times, very uncommon in the Seventeenth Century, and was more easily cured than those which appear at the present day. — Dr Home has cured one case of the disease, and the viscus has been used in it, in the state of Delaware — so little reliance however is now placed in it, that it is rejected both by the London and Edenburgh Colleges. — —

Kino

This is a late and valuable acquisition to the Materia Medica, and is certainly one of the most powerful and useful adstringents we posess. — We are informed by Doctor Fothergill that it is a gum exuding from ~~punctures~~ punctures in a Tree called Pau de Sangue which grows in the internal part of Senegal. — We are not however perfectly acquainted with the botanical history of the article. It is possible that the gum may not be procured from one only but from three different trees. It is adstringent blended with a peculiar sweetness; and is destitute of smell, being soluble in water, but in this it is more liable to be decomposed by acids, than in spirits of wine in which it forms an elegant Tincture. Both the aqueous and spirituous solutions strike a black colour with the sulphate of Iron. —

Mr H. Davy says that the genuine Kino from the East Indies is more powerful bulk for bulk than any other adstringents. It is much superior to any of the other Species in a Medical point of view. One drachm of the Kino will be a good dose in the twenty four hours, sometimes we may go as far as ℥ij. ~~~~~~~~~~ I have found the following a very convenient and useful formula for exhibiting the medicine, in which it is rubbed down in sugar and Gum Arabic. ~~~~~~~~~~~~~~~~ ~~~~~~~~~~

℞. Gum Kino ℥iij
Gum Arab - ℥ij
Sugar ---- ℥ij
water ---- ℥x

Kino has been used in Intermittents by Doctor Fothergill, and he sometimes ~~used~~ cured obstinate Agues with it; these refuted the best Peruvian bark, but the latter often succeeded after the failure of Kino. The formula in which he used it was

℞. Gum Kino ℥ij
Proof Spirits ℔j digest six days and strain. ~~ In conjunction with Columbo I have cured Intermittents with it, after the failure of both bark and arsnic. I have found the following to be an excellent formula.

℞. Kino — grains XLVIII
Gentian grs LXIV
Opium grs VIII M. f in VIII doses
one to be taken four or five times during the intermission.
I have employed it also in some Intermittents with peculiar advantage in combination with sugar of lead. The Edenburgh College have combined it with Alum in the pulvis Stypticus.

Doctor Fothergill has employed Kino in Catamenia, and Cullen says he has been informed of its being useful in Uterine Hemorhages particularly after Child Birth. It is used in Leucorhoea, but here Doctor Cullen says he has been frequently ~~disapp~~ disapointed. I have cured two very obstinate cases by injecting through the Vagina a solution of it in lime water this is an excellent formula, and I keep it for myself.

Benjamin Bell has used the Kino as an injection in Gonorhoea, his formula is

℞. Pulv Kino — ℥ii
Alum — ℥i
Muc Gum arabic — ℥i
Aqua fervens — ℔j This is
to be strained as the Kino is often impure.
The European Physicians use much stronger injections in Gonorhoea than we can in this Country.

The colour of the article which, as I hinted before, is red, is an objection to it, since it may lead to a discovery. With us the injection may be thus exhibited

℞. Kino --- ʒii
Gum Arab -- ʒi
Boiling water ℥x

or

℞. Kino -- ʒij
Alum --- ʒii
Opium grs ... j
Water ---- ℥x. m.

I have cured a very obstinate gleet of two years standing with Kino. It has also been employed in Diabetes. Doctor Pemberton who lately published a Treatise on it speaks of it in the highest terms; He has recommended it in Pyrosis, or water brash thus

℞. Kino grains x Purified Opium gr i. Muc. Gum Arabic q. s. M. f in 2 pills of which take one every four hours. This disease is most common in low marshy Countries. In one case of it which came under my care the last Winter, I employed it with the greatest advantage, but in larger doses than were used by Doctor Pemberton, his were rather small.

I generally use the watery solution of Kino in Diarrhœa; I prefer it to the Spiritous Tincture because there is generally some latent Inflammation in Diarrhœa.

Cathecu vel Terra japonica.

This is obtained from a plant called Cova or Caria by the natives of Balsai a province in the East Indies. It is very little used in this Country, and I have never employed it. The Cathecu is of a dark red colour, bitter and adstringent; having also somewhat of a sweetish tast. The dose is one or two drachms. When pure it is soluble in water or in spirits. Doctor Cullen seems to think that adstringents, are more useful than is commonly supposed in cases of Ulcers, I think that they would be extremely beneficial in ulcers on people of delicate constitutions, and when they have assumed an indolent form.

Cathecu is generally used in Fluor Albus, in Dysentery, Diarrhoea, and in all cases where the most powerful adstringents are not requisite. It is produced from a species of Minosa or Sensitive plant and is a gum resin.

Uva Ursi.

This is an under evergreen shrub, growing in barren situations, and a Native of our own Country. The leaves are considerably styptic, having an agreeable bitterness, and producing a copious flow of Saliva. The leaves are more powerfully adstringent than the stalk, contary to the opinion of Dr Murray

The toughness of the leaves prevents their giving out much of their virtues by infusion, and the decoction is therefore preferable. The Uva Ursi exerts but a very trifling effect upon the heart and arteries, and this is also the case with Kino, and some other of the adstringents ~~of about the same strength are employed~~ It is useful in most of those cases in which adstringents of about the same strength are employed. — Doctor Oliver of Massachusetts employed it with great advantage, where the constitution or Stomach was so weak as to prevent the exhibition of the bark. —— I think that grs Viii or x bis vel ter die would be very useful in Dyspeptic cases. In Leucorrhœa I believe it would be very useful. —

I have employed it with very great advantage in Gonorrhœa of long standing. — In one case the use of any injection which was sufficiently adstringent to produce any effect upon the discharge induced Hernia humoralis, I gave the Uva Ursi in substance, and occasionally threw in Mild injections. — Benjamin Bell, speaks highly of it. —— I do not however consider it as adapted to recent cases of Gonorrhœa, and which depends on Inflammation, but in chronic cases and those of long standing, I recommend it. I have nevertheless seen it useful in some cases attended with Inflammation. The Medium dose of the Uva Ursi is I think about ℈ss ter vel quater die —— and sometimes we may go up to ℥i. —

This medicine has of late been recommended in Phisis Pulmonalis. I believe however it will produce no good effect in this disease unless, as some of the London physicians say, in the sweating stage; and then from its producing so little effect upon the heart and arteries. I suspect it would be very useful as a tonic.—

Geranium maculatum.

This grows abundantly in the United States, the root is bitter and adstringent. Though I think that adstringents should be more used in the Cholera Infantum, yet the more stimulating ones would certainly do harm. In Lancaster the root of the Geranium is boiled in milk, and the person is allowed to drink as much as he likes of this decoction. This practice is said to be very advantageous, and I have adopted it with very good effects. I think that to little attention is paid to the adstringents in this disease. I doubt not that the stimulating ones would be injurious, especially at the commencement of the Cholera, when it is attended with Fever. The geranium may be used with a very good effect in Hemorrhages of the stomach and Intestines: It is the principle resort of the Indians.—

Orobantia Virginica.

Called also the Cancer root, and from its being only found under Peach trees, the Peach drop. This I believe was the vegetable powder which was one ingredient in Martins Cancer powder. I would recommend (it) you to employ it in combination with arsenic.—

Doctor Benson of Germantown used it in one case of Cancer which he says was cured by it.

Heuchera Americana
or Alum root.

This is like the above a native plant, and also abundant in the United States. It root is one of the most powerful adstringents that I am acquainted with. It tastes very much like common Alum. It forms the basis of a Cancer powder used in the Western Country. It has been used alone in Cancer, and it is said with very good effect. I am inclined to believe however that other diseases were mistaken for Cancers. The Indians apply it externally in all cases of wounds, Ulcers &c. &c.

Rubia Tinctorum. Madder

The Madder is not a powerful adstringent. It is chiefly remarkable for its power of tinging the bones of such animals, as are fed on it, of a beautiful red colour. Its effects are more evident upon hogs, than any other animals, and upon those which are young and growing than old ones. The action upon the bones may be considered as owing to a Chemical attraction, such an attraction as takes place frequently between Madder, and various earths as lime, and also some of the Metallic oxides. This affinity is so strong that the colouring matter leaves frequently the menstrua in which it may happen-

to be, and combines with these substances, and if they are both in a state of solution, the combined substances will often be precipitated. This we find to occur in the formation of the lakes. If Madder be added to a solution of lime, or the muriate of lime, no change is effected, but if to this mixture the phosphate of Soda be added, a double elective attraction takes place; The muriate of Soda is formed, and the phosphate of lime, this latter which is insoluble in water, at the instant of its formation seizes on the colouring matter of the Madder, and falls down in a state of combination with it, forming a beautiful crimson precipitate. Perhaps the enamel of the teeth might be coloured by supplying the animal with madder whill this enamel is forming, as by given it to the pregnant mother. Madder colours the Milk of Cows, and the same effect is said to be produced on the feathers, and Cartilages of birds.

Madder is not absolutely inert as an astringent, though it does not possess much power: It causes the animals who feed on it to be sluggish and languid, and after a time feeble. It has been recommended in Ricketts, but I think without foundation. In Jaundice too it has been said to be effectual, but I attribute the good effects here to other substances with which it was combined. The cure of Jaundice is frequently accomplished by the spontaneous evacuation of the biliary ducts of the stones which produce the disease, and Madder, like many other substances has frequently acquired reputation where it did not deserve it, from having been used at a time when the effect was produced by nature alone.

Tormentilla.

This is the Tormentilla erecta of Linnaeus, and is found wild in woods, and on commons. It is a long slender stalk with usually seven long narrow leaves at a joint. The root which is the part employed in practice is for the most part knotty, and of a blackish colour outside, and a reddish within. It has an styptic taste, and with this is a slight aromatic flavour. It is one of the most agreeable and efficacious of the vegetable adstringents, and has been recommended to prevent abortion. This is owing to great weakness and is common to women having Leucorhoea. Women having a weak constitution are advised to begin the use of the Tormentilla immediately after conception: It is used with good effect in all cases where are medicines of this Class are proper.

This closes the list of Vegetable adstringents.—

Of Mineral Adstringents.

Under this head I shall speak but of two articles, which in my opinion are the only ones deserving of attention, as respects their adstringent power.

Alum

This is a neutral salt made by the combination of the sulphuric acid and Alumine. It is the argena vitrola of the famous Bergius, and is very abundantly diffused throught nature.

It has been found native in Pennsylvania, Maryland, and Virginia, and is very abundantly diffused in considerable quantities. It is thought to exist very fequently in many mineral waters, but the sulphate of Iron is fequently mis=taken for it. Alum has sometimes been used for tanning leather. It is used in medicine both internally and externally. I shall speak first of its use.

Internally. Alum is known to the Young women in most parts of Europe, and perhaps too in America in Parturition.

It has been, and is now employed in Intermittents. Dr. Cullen has given it before the expected paroxysms but he says that both the Alum and nutmeg, which he combined it with, were both so irritating to the stomach as to prevent their being repeated, when more agreable and more effectual remedies could be procured. Dr. Lind, on the other hand, says that he found Alum joined with nutmeg the most powerful remedy that he knew of, except the peruvian bark, in Intermittents. It is used with Canella Alba, and Bark in Bilious fevers, in hot climates by Dr. Adair. Dr. Chalmers has recom=mended it in the putrid bilious fevers of South Carolina, which he allows to differs sometimes, but little from the pestilential (fever or) Yellow fever. I have sometimes employed it in Intermittents with Columbo, but I have found it to produce disagreable effects upon the stomach. Dr. Darwin thinks that it is only useful in fevers situ=ated in the Intestines.

It has been given in Small doses

with good effects in Cholera Morbus, and Diarrhoea. It is also useful in Cholera Infantum with water and laudanum in the last stage of the disease when it is merely one of debility. It has been thus employed in our City, rubbed down with gum arabic and sugar, the water being gradually added, and afterwards the laudanum.

Our medicine has been much used in Hemorrhages. In Hemoptysis and here it is often useful, but in general it is likely to do harm, and so are all the stimulating medicines. It is also used in Uterine hemorrhages particularly by Van Helmot who is said to have acquired no small celebrety in this practice. It was formerly used by Helvetius fused with a portion of sanguis draconis, but the latter is absolutely inert in the gastric juice. Doctor Lewis says that in this combination the acid acts slowly upon the stomach, but it may be exhibited by giving small and frequent doses. Doctor Cullen begins with doses of five grains but increases to ℈j and that two or three times a day; but I have found five grains to irritate the stomach so much as to prevent its continuance. Our article sometimes purges, which is a property it possesses in common with other adstringents.

It has been found useful in Catamenia, or a return of the menses more than every 28 or 30 days. here ℥ss of a compound of alum and Sanguis draconis may be given every half hour. Doctor Thompson recommends this very highly

and think it superior to every thing he ever used, but his doses were very large, and it is extraordinary that his patients could bear them. It may also be exhibited in the following formula.

℞. Alum ℥i

Powdered galls ℥ss. Rub down with gum arabic and loaf sugar and divide in 8 or 10 doses.

But sometimes Catamenia depends upon too much action in the vessels of the Uterus. In this case it is to be cured by rest, gestation in a carriage, or Vessel at sea, low diet, and avoiding all stimulants, particularly the stimulus Veneris. Sometimes a change of Climate will be of service; This kind of Catamenia is increased by a generous diet, and I distinguish between the two kinds by enquiring whither the complaint is worse after a rich meal.

In cases of Scorbutic gums Alum gargles are very beneficial as has been found by Doctor Gordon. In Fluor Albus where Dr. Thompson used the Pulvis Helvetic, I often use Alum combined with Columbo or Bark. In that state of its depending on Weakness, when there is but little fever and the discharge is not increased by a generous diet it is very useful. This disease is frequently combined with a pulmonary hetic, and then I should not use it, except in very small doses or in the shape of Alum whey.

Useful injections are made with it in Gonorrhoea, as solution of Alum in water, or Rose=water, in the proportion of gr X or XII of Alum to ℥X of Rose water is very useful, but is made more so by combining it with oak bark thus

R. Oak Bark ------ ℥i
Rose water ℥X boiled to ℥XV
Alum ℥iii. m. Injection

Alum has been long used in Diabetes and may be useful in the latter stages of the disease when it depends on weakness. It acts here by virtue of its actstringent and tonic power. Dr. Wistar cured one case with alum whey. Dr. Dover had a high opinion of our medicine in this disease, so high indeed that he thought it required no other remedy. I suspect however that the cases he saw were those of debility. As the disease often depends upon increased action, it is evident that then alum must be prejudicial. Dr. Darwin thought that Alum acted as a Diabetes by stimulating the absorbents of the bladder; perhaps a great part of Dovers succes may have arisen from the medicines producing purgative effects, for he does not inform us in what manner it acted.

Externally. Alum is used as a gargle in Relaxations of the Uvula, and swellings of the mucous membrane of the fauces, and in putrid Sore Throat. It is employed also in Inflam=

=mation

of the eyes, either in solution, or as Cullen recommends it, in the form of the coagulum Aluminosum, which is made by agitating a piece of Alum in the white of an egg, then spreading the coagulum on a piece of linen and applying it to the eye.

There is a disease to which Children are liable, a Dropsical affection of the Prepuce which is not mentioned by Physicians; the prepuce is generally punctured and serum runs out; In this disease the coagulum Aluminosum applied to the part affected is very useful.

Alum coagulates milk, serum, and other similar fluids, and the serum almonosum or Alum whey is made by boiling ℥iii of Alum in a pint of milk, and may be made more agreable by the addition of sugar, rose buds, or some similar articles. The burnt alum has been much employed as an escharotic for consuming proud flesh in ulcers, but is not so powerful as mercury and copper. The action of Alum in hemorrhages is not completely understood. It is supposed to act by cooling powder. It is certain that it increases the pulse in some degree.

Plumbum. Lead.

This is unquestionably an important and indispensible agent in the hands of Physicians. I am at a loss where most properly to place it. Dr. Cullen you will see has clased it under the head of adstringents, and as some of the preparations are doubtless adstringents, I shall retain it here, as much

on that account, as from a wish I have not to break in upon a general rule. I shall first speak of the article, secondly of its operations in inducing diseases, and lastly its cure of them.

In regard to the natural history of lead we first find it universally over the world; according to Sir Isaac Newton it melts in 500° of Fahrenheits, and when exposed to the heat of steam boils, and even (boils) evaporates. The different preparations of this metal are Lead in a sublimed state, calcined or red lead, Litharge or the metal in a semivitrified state (all of which are used extern=ally in ointment for sores &c.) white Lead, or the Carbonate of Lead, which taken internally has produced the effect of Mercury, as swelled Gums &c. (Goulards extracts, made by boiling Lead and Litharge four pounds with an equal quantity of wine vinegar for four hours; the vinegar is then poured off; this differs very little if at all from the acetate of lead. The acetate of lead, Saccharum Saturni, or Sugar of lead which is the most important is lead com=bined with the acetic acid, the crystalls appear like small needles with summits, the taste is sweetish taste, and is highly soluble in water.

The following is the method of prepa=ring it. Put into a Cucubit any quantity of Ceruse and pour upon it ten times the quantity of distilled vinegar, let the mixture stand (untill) upon warm sand untill the acid becomes sweet; it is then to be poured off, and fresh vinegar added to the ceruse untill it continues sweet; all the vinegar is then to be evaporated in a glass vessel to the consistence of honey, and set it aside in a

cool place that crystalls may be formed, which must be afterwards dried in the shade.

We now proceed to take notice of the deleterious effects of lead, and the diseases which it induces when incautiously used, and which have in general intimidated the faculty to such a degree, that this valuable medicine has long been in disrepute.

One of its most dreadful effects on the human frame is the Colica pictonum, Saturni, and other names of which Dr. Cullen treats in a very satisfactory manner. It is induced by lead in different shapes, and through various vehicles, one of which is liquors which has been previously contained in leaden reservoirs. It is induced by Cyder and other acid drinks, and by wine adulterated with lead. A Venetian wine Merchant is said to have destroyed 90 persons in this manner. It is thise we account for the rapid strides of Death among the Soldiery in the West Indies, who take in this poison in New Rum, which obtains it in its passage through leaden pipes. In Painters, the Cholica pictonum is also not uncommon, from the white lead they use in painting, and also from the custom they have of putting the brushes between their lips after using them. It is also common to Potters, and proceeds from the vapours of the lead which they use in glazing. The disease is also to be found among Printers from the use of hot types, but sometimes it is modified and appears only in the shape of Rheumatism in the wrists &c. and constipation of the abdomen: Those who work in lead mines are very subject to Colica pictonum. These are facts that cannot

be contradicted, yet I am much inclined to believe that lead does not induce the disease but from a long continued use, and this idea will favour the practice of it as a medicine. Dr. Munro says that of very many cases of Colica pictonum induced by lead which he saw in St. Georges Hospital, they were all from a long continued use of the article. For a particular description of the method of curing the disease I must refer you to the Professor of the practice of Medicine, to whom indeed it more particularly belongs; but I shall not drop the subject without a few words from my own experience; the cure depends first and principally upon emptying the blood vessels, and where the pulse indicates it, it will be necessary to bleed, though Cullen says not. The medicines particularly recommended here are the crystalls of Tartar, and the Oleum Ricini, both unquestionably good. Opuim must sometimes be given to relieve pain; but not before the bowels are opened; here opuim proves cathartic which is much in favour of its stimulating quality. I have found cold water dashed on the extremities to prove very shortly cathartic. I have used Gum guiacum with much advantage. A Salivation is often necessary before the patient is perfectly recovered.

Another deplorable disease induced by Lead is Gutta Serena, and when it is recollected that Lead produces paralysis in other parts, it is very probable that it should produce the disease of Amaurosis.

Sometimes our medicines induces a genuine Pneumonia, no ways different from Rheumatism.

The disease of Colica pictonum is said to be prevented by the use of lard largely spread upon bread, the lead must in my opinion produce

I am also credibly informed i.e. by Mr. Bunce of the U States Navy that Sailors when in want of water Chew lead & swallow the Saliva, without suffering any injury from it. J M C M

21. Oct 1811.

The same Gentleman also informed me, that Numbers of the Crew of the U.S. Brig Nautilus at Norfolk, were taking violently ill. Some of whom died. The Surgeon of the vessell declared that it originated from Water being kept in casks lined with lead.-

(dett.)

its deleterious effects by small particles of its entering in the Stomach. I do not assert that lead induces some of the above effects, but I cannot ascribe so many ill effects to it has as been done by Sir George Baker, and others. The Mallic acid in the shape of Cyder frequently produces the same effects ascribed to lead. It often shifts gouty pains and produces Rheumatic ones in the wrists, all this is done by Cyder, in which we are sure no lead is introduced; but to many persons lead is far from being so delenterous as is supposed, as you will shortly be told. I have only to add that the proportion of Potters, Glazers, and Printers affected by it with Colica pictonum, are very few in comparison to those of the same classes, who never knew the disease. About nine, or ten years ago a student of mine, mistook for Tartar emetic, the Sugar of lead, and the patient took at different times fifteen grains before I discovered the mistake, and nothing had resulted. Two Smelters who had worked nineteen years at smelting in England, had baked Cheese, bread and flesh upon a sheet of hot lead, during all that time, and never knew the Colica pictonum. A Gentleman who was subject to the heart burn found relief in swallowing his salva, and in order to procure a large quantity he was in the practice of Chewing lead, which he did for many years without any inconvenience. The Saccharum Saturni when taken in large doses ℥j by mistake produce none of those dread-ful effects which small doses long continued would do.

The object of these arguments Gentlemen, are to shew that though in some constitutions the use of lead long continued may produce Colica

pictonium

, Gutta serena, Rheumatism & yet it is certainly not so dele=
=terous as represented by Sir George Baker.

Lead is by no means unfavourable to the growth of vegetables, that is in certain doses, for too large ones produce death. Wheat, Rye, &c. have been made to grow in in leaden mines, and I have kept a a plant living equally long in a weak solution of lead; as it would have done in pure water. I will now treat of the diseases in which our medicine has been used and first of its

External use.

Goulards extract, used for fomentation than which however we have found poultices made with a solution of Sal Glauber and crums of bread better is often beneficially employed in inflamed and swelled surfaces, and among them these in Hernia humoralis; also in Inflammation of the Eyes, but not by any means of the scrophulous kind, for here I have seen it do manifest injury. The solution is also used for Pimples in the face, Fistula &c. A thousand other benefits are ascribed to it by the French nation, but with too much partiality, it is however an important article.

Doctor Darwin says linen rags moistned with a solution of Saccharum Saturni ℥ss in a pint of water is the most effectual remedy in Erysipelas tending to Mortification, but I think we ought to be very cautious in the application of lead to this disease, for the inflammation should be as much as possible kept on the out surface, while the lead would repel it inward. Upon the whole I think that it would be more useful in Inflammations from

external violence, than that preceded by internal causes. A few years ago Mr. Latrobe of this City, contrary to my advice, applied a solution of lead to an inflammation that had appeared upon his patella, by which it was dissuefed, and he told me that he had found a cure for it. I desired him to wait the event untill the next day; during the following night I was sent for, and found him apparently dying with gout in the stomach, from which however I relieved him. I hardly need add that he never repeated his practice.

Mercury and lead combined together are said to be useful in Scrofhula, and they may be so in the floid Scrofhula but not in that occurring in people advanced in life.

In Gonorhœa our medicine as an injection has been long employed with effect, but the solution should not be strong in the incipient stages of this disease, for it is not prudent to stop the running suddenly, instead then of using gr x of the Saccharum Saturni in ℥x of water, beyond which I seldom go, I generally use but 3 or 4 grains of the medicine in that quantity of pure water, with double (gr vi or viii) of the white vitriol. But when the discharge has continued for some time, and seems likely to continue to terminate in gleet, it may be necessary to stop it by ʒi of the medicine in Rose, or pure water, or substitute some vegetable adstringent infusion. By thus adhering to the use of mild injections I have not seen a case of hernia humoralis for the last ten years. When the patient complains of frequent inclination to make water, and passing but little at a time

I desire him to desist, as swelled testicles will otherwise most probably ensue. 24 Trops of the Gum Lithargyr is of much use in Gleets. In Fluor Albus an injection of our medicine will do good.

Internally.

Lead has been used as a remedy for Intermittents. I have seen a Gentleman from the Army establishment who informed me that he had used it with the happiest effects. Arsenic sometimes fails of affording a cure in these cases, and then I think lead should be tried. I have used it very advantageously combined with Kino. In some obstinate Intermittents in the Year 1804. which refused to yield to any other remedy I frequently and with very decided advantage used the Columbo joined with Kino. In the Apoplectic Tertians particularly I would advise the Saccharum Saturni to be employed. I would not advise our Medicine to be indiscriminately to be exhibited in practice, or even that it should be commonly used, I only recommended it in desperate cases, where other remedies have failed.

It has been given in Epilepsy and particularly in those cases occurring in Infants. Dr. Rush has tried it upon a girl in the Pennsylvania Hospital, whom it relieved, but did not cure. In the same case I gave the Stramonium afterwards with decided advantage. One great objection to the use of Saccharum Saturni is, that, except in hemorrhages, it must be continued for a considerable time; because Tonics seldom do good in Epilepsy unless continued for some time, and this is not unattended by danger.

It has also been prescribed in Pertussis

or hooping Cough, but I have never tried it, and think less of it in this disease than the sulphate of zinc. Of late it has been recommended in London as an infallible remedy in this disease.

Mr. John Hunter supposing that Tetanus was the consequence of violent and increased action has recommended the use of Saccharum Saturni, at the same time that the patient is in an ice house. I do not find that he ever practised this method, and therefore it was probably it was a mere speculative Theory. Though I approve not of Mr. Hunters plan, yet I deny not that it may do good, and in this dreadful disease which has so often baffled the attempts of Physicians, I think it would be justifiable in trying almost any experiments.

The Saccharum Saturni has been advised in Mania, Hydrophobia, Melancholia, and Dysenteria, and we must pay some deference to the authority of the numerous writers who have recommended it. I have had no experience with it in these diseases, but as it has generally been employed in combination with Camphor. I think that this has probably produced the effects that have been attributed to the lead.

It has also been advantageously used in Cholera Infantum; a few grains of it has served to lower the pulse from one hundred and fourteen to twenty. I have used six grains to a Child six years and a half of age, during the twenty four hours, I have not however pursued the practice; from having at (having) hand other remedies which were more certain, and less dangerous.

Of the use of Lead in Diarrhoea

I cannot say much from experience, but it has sometimes produced good effects. A latent Diarrhoea, or one in which the pulse does not indicate any febrile action, even after the strictest attention is paid to it, it frequently met with, and in such cases the lead may be employed, and has been so with decided advantage. It has also been given internally in Gonorrhoea and in many other diseases. It certainly diminishes the frequency and fullness of the pulse.

The Sugar of lead has been used in Phthisis Pulmonalis. I can however say nothing satisfactory respecting this practice, which is drawn from my own experience, having never used it in the incipient stages of a genuine Phthisis. I have however used it with great advantage in the spitting of blood; which is common in this disease, and in one instance by means of this medicines, I protracted the life of the patient for several weeks. I think it might be useful in Pyosis in combination with Kino, or some other vegetable adstringents.

It is an excellent remedy in Hemorrhages of red blood. I do not pretend to the merit of having first introduced this practice, although I think I have contributed very much to revive it. I find that it was mentioned by many of the older American practitioners, and it was formerly much more employed than it is at present. Sir George Baker and Doctor Harvey were almost the only causes of its being interrupted. I find that Dr. Hebberdeen says if any medicine deserves the title of Specific, it is the Sugar of lead in

— hemorrhages —

; I recommend to you his commentaries on Diseases; It is a work which I would wish to see in the hands of every young practitioners. Physicians differ very much respecting our medicine in hemorrhages; Dr. Murray says that it is a violent poison, while Dr. Reynolds very much approves of it in these diseases, he recites several cases which tend to shew its efficacy, particularly when combined with opium; without it was apt he says to induce Colic and Consumption. Though I would not advise it to be commonly used, yet I think it should be resorted to in cases which have resisted every other remedy, or which are so violent as to shortly to destroy life. The following is my formula for using it.

R. Sac. Saturni — grs i ℈s.
Tinc. Opii gtts iv. m. Pill — every 6 Hours

This I once employed in the case of a man aged 33 to very great advantage.

I have frequently used our medicine and with very good effects in the last stage of Dysentery which had resisted every other remedy, and in one instance it entirely cured the patient. I have seen it stop a violent hemorrhage of the Anus; in a case of Phthisis pulmonalis. The largest doses I ever gave was grs viii the following is a good formula

R. Sacc. Saturni ℈i
Gum Arabic — ℥i

Rub them down, and divide the same in ten doses, of which, one may be given every ten hours. I had one

patient, Mr Dennis Hatt, who was afflicted with a malig=
=nant fever, and a hemorrhage from the intestines, he was
in the decline of life, and passed in 24 hours, ~~eighteen~~ 80
or ~~twenty~~ 90 ounces of blood, of the loss of which, he was
entirely insensible; I administered the lead immediately
in the following manner.

℞. Sacc. Saturn. gr viii
Opium ---- gr i
Ipecacuanha gr iv
Vitriol alb. gr x. m.

And divide into four doses for the twenty four hours;
this succeeded, and I believe nothing else would have
saved his life at that time. I approve much of the
practice of combining Ipecacuanha with the sugar
of lead, and I believe that I first employed it
in this manner.

The Saccharum Saturni is ex=
=temely useful in Uterine hemorrhages when nothing
else will answer. The following is a very good
method of exhibiting it, when called to a case of
the kind.

℞. Sacc. Saturn gr ii ss
Opium, a small quantity. m.

into two doses, and give one immediately, and the
other two hours and an half afterwards.

Some Years since I was called
to a Lady, who was afflicted in this manner on the
fourteenth day, of a uterine hemorrhage, I found her
with

a flushed face, and other inflammatory Symptoms. — I advised her to be bled, but this she objected to, having by that means lost a Child sometime before, and being again at this time pregnant. I then gave her a dose of two grains of the Sugar of Lead, with a small portion of Opium, and as much more two hours afterwards, the hemorrhage was completely stopped, the heat of the skin, and the frequent and quick pulse were reduced more effectually than they would have done by bleeding. A blister to the abdomen, had there been time for its operation would probably have done good.

Another Lady in a similar situation sent for me, but with much more alarming symptoms; she was on the eve of convulsions, and in fact of dissolution. She was scarcely sensible: I could with difficulty feel her pulse, and the blood was still flowing. No time was to be lost, and I instantly exhibited gr iii of the sugar of lead, with a little opium; In less than five minutes she revived, the hemorrhage was stopped, and she told me I had saved her life; the bleeding however afterwards returned, when I gave her a smaller dose, which was followed by complete and permanent success: five weeks afterwards; the natural termination of her pregnancy, she was delivered of a healthy living child. — I shall add another instance of the efficacy of our medicine, which I presume will be entitled to your attention.

Mrs T— of this City had a Catamenia at the age of Twelve, married at seven-

teen,

, and after sometime the flowing increased, and was at times irregular. She was bled repeatedly, submitted to a low diet, and was frequently blistered, but all without doing any good. Iron was exhibited without effect, and it even seemed to increase the disease. I then put her upon a small course of the lead, two grains with opium, and the disease yielded rapidly; and after two years, exceeded my most sanguine expectations. If her situation in life had been such as to have enabled her to receive the benefit of gestation in a carriage, it would probably have rendered the cure a permanent one; but this was not the case as she was poor. The hemorrhage after some time returned, and the medicine by repetition seemed to lose its good effects; I was then obliged to apply issues. This case I think would seem to indicate that most hemorrhages are of the active kind.

The Saccharum Saturni is fitted to restrain hemorrhages of the active as well as of the passive kind. It is true that most of those cases in which I have employed it were active; but the hemorrhage in Mrs. Dennis Hart was evidently a passive one. Mr. Burn says that astringents do not prevent Uterine hemorrhages, without producing sickness. I know however that this is not the case, because Uterine hemorrhages are almost always of the active kind, that is they arise from too much action, and Saccharum Saturni is the most proper remedy especially when combined with Ipecacuanh, and I

have

frequently observed this combination to remove the hemorrhage, without inducing the slightest nausea.

Lead is an extremely important article in Hemoptysis, in no one instance of this kind have I known it fail to do good, in almost every case it has effected a cure, and in none has it done harm. In Uterine hemorrhages iced water, which has been commonly used, operates very slowly; I have often indeed been obliged to regret the failure of cold: In one case I applied ice to the abdomen and the vagina, and the hemorrhages continued although the patient was nearly destroyed by the action of the cold. Lead on the other hand will have a rapid effect, from four to six grains I am confident would completely command a hemorrhage, and I believe that it produces its effects in some measure by reducing the strength and activity of the pulse.

The mode of operating is not yet completely understood; It produces the same effects as venesection, and is therefore useful in active hemorrages, as in hemoptysis. This however is not its only mode of action. It is more effectual than bleeding, purging, or low diet, even in active hemorrhages; it is also more useful than Foxglove, though this reduces the pulse more than lead. Lead cures that species of Leucorrhœa which would be increased by pursuing the debilitating plan. It is very excellent also in passive hemorrhages, It must therefore possess some other property besides that of lessening the pulse. This may be partly owing to its adstringency, and this is rendered more probable by the idea that some adstringents which exert very little action on the pulse, are very useful in hemorrhages. A solution of common

salt

salt being applied to the cut extremity of the nerve of a dog, the muscles of the Tibia and foot were violently agitated, upon applying the Saccharum Saturni, this agitation ceased, but the power of life was not destroyed, for the solution of salt again produced violent action of the muscle, and was again removed by the lead. A more violent stimulus than the salt produced a third time the same agitations, and were a Third time suspended by the lead. Perhaps lead might cure hemorrhages by exciting a new mode of action in the stomach, we are not however able to explain its modus operandi in a satisfactory manner.

As its effects are so opposite to Mercury it might perhaps be proper in cases of Profuse Salivation; but of this I shall say more when treating of Mercury, at present I rely upon large doses of opium.

In exhibiting our medicine I generally combine with it a small quantity of opium, generally in the proportion of one grain of the latter to four or six of the former; I would advise you to follow this practice, for I am apt to think that the reason of Colics being never produced in cases where I exhibited the medicine, was owing to the combination with opium. Doctor Reynolds used no opium in the first dose he gave, Colic however was the effect produced, but afterwards by combining the two medicines together it was avoided. With respect to the dose it must be regulated, as that of all other medicines are, by the age, constitution, disease, and other circumstances; It will in general be prudent to employ small doses; the largest one I ever administered was eight grains, with one of opium, to a Negro man afflicted with Epistaxis, and was the most copious hemorrhage I ever saw;

the blood was removed in buckets, and yet our medicine stopped it. In Uterine hemorrhages small doses of two, three, or four grains will answer, and that better than 48 or 50 ounces of blood from the arm. Other Physicians have much exceeded me in the size of their doses, and among the rest is Dr. Jones of this City; who exhibited gr XX to a woman. The patient recovered very well after taken this dose. I am informed by a Gentleman present that he has seen 60 grains given without prejudicial effects. The external use of lead, in such a manner that it may be absorbed has been much censured and certain injurious effects have been ascribed to it, particularly by Dr. Boerhaave where it is used as a Cosmetic, I doubt however that lead will be ever absorbed where the skin is whole. It is nevertheless worth while to observe that the absorbents both in plants, and in animals, will refuse at first to take up certain substances, which they afterwards do take up.

Such Gentlemen are the observations I have thought proper to make to you upon the medical effects of lead. — And I have been induced to carry them to some extent, The Edinburgh Professor having given so little information upon this head, and seeming to think with many others, that its deleterious effects are so great as to render it an extremely dangerous article, and by no means acceptable as a medicine. With this I close our class of astringents, and enter upon the consideration of another.

Of Tonics.

These are the Roborantia and Musculaia of Linnaeus, and Doctor Gregory, Their effects are somewhat similar to those of adstringents. Dr. Darwin objects to the term Tonics and Braces, and says that it more applicable to musical strings than to animal fibres; and perhaps there is some propriety in his objections, but the terms are so commonly employed that I think they may be continued, and more so as it is not necessary to examine their modus operandi. Darwin acknowleges that the medicine to which the term is applied produce a tension of the muscular fibres, but says that they likewise possess some other property; he also calls them Roborantia. I prefer the term Tonic, but shall also occasionally make use of Roborant.

The true Tonics, are those which give partial, or general strength to the body, without increasing its heat. There are some substances, as wine for instance, which give a tone to the system, but at the same time increase its heat; these latter however do not exert so permanent effects upon the body as pure Tonics. The invigorating effects of peruvian bark even in a dose of ℥j is often felt forty hours after its exhibition. I think however that a substance may be a Tonic and not at all times increase the strength of the system. For instance, the stomach has sometimes a morbid tone, thereby exciting us to take in more food than is proper or can be digested. In my opinion then whatever conduces to restore that organ to a healthy state may be considered as a tonic, not however if it carries the stomach below that point.

This however is not the general light in which this class of medicines are viewed. Some writers think that

Tonics exert their principle effects upon the muscular fibres, but their effects are not confined exclusively to these parts of the body. They likewise act as stimulants upon the nervous system, and they also affect animals in which no nerves exist, or at least where none have been discovered; the first is evident from their exhilirating effects, and from the phenomena induced by their application to the cut extremity of a nerve. Many of them exert themselves even upon vegetables: A solution of Iron, of Copper, and of Zinc, if it be not made too strong will increase their vigour. This may be said to (~~increase~~ prove) that their action upon animals is owing to their action upon the muscles, but it is not probable that vegetables have muscles. Tonics increase the tone of the cellular membrane, a weakness of which is the cause of Anasarcous Dropsy; When this (the cellular texture) possesses a due proportion of contractibility, the whole body is in proper tone, and it gives strength and firmness to it: Its tonics exert their effects upon animals and vegetables, in which neither muscles or nerves exist; I think they must chiefly act on the cellular texture. ~~~ Dr. Cullen thought that the Tonic power of substances was chiefly that which gives them their bitter taste, that the purest bitters were considerably tonic, and that except in so far as the adstringents may be such; the purest Tonics are the bitters, and these only — I shall make before I proceed further, a few observations [illegible]. ~~~~~~~~~~

The pure bitters are to be sure, generally tonics, though I do not believe that the tonic principle consists so essentially in the bitter one, but tonics frequently possess some other property which predominates over their

bitterness

We have numerous proofs that the tonic power does not reside exclusively in bitter substances; many very bitter articles are not Tonics, and many very powerful Tonics are not bitter. Opium, Fox glove, and many of the lactesent vegetables are destitute of a tonic effect, and the galls which are powerful tonics are destitute of bitterness, and so are the metallic tonics, the preparations of Iron, Copper, Tin, Zinc &c. The fossil acids are powerful Tonics, but not bitter, and many things which conduce very much to health possess neither bitterness or adstringency; The Cold bath, exercise, a well regulated diet. I will not pretend to say what this diet should be, occasional indulgences in venereal pleasure, most of the passions of the mind, Ambition, joy, anger, hatred, vengence, expectation, and pain in a certain degree, which inspires courage, are all Tonics. If Cæsar had not been Ambitious he probably would have fallen a victim to the Epilepsy to which he was subject. We have often heard of parents being kept alive by the expectation of a favourite Child's return after a long absence. Joy has caused frequently Intermittent fevers. The tonic property of medicines therefore is not exclusively attatched to any one quality, neither to their adstringency or bitterness, but is probably occasionally formed by the combination of different properties. We form Tonics by combining adstringents with bitters, we increase the powers of peruvian bark, by combining with it a portion of Camphor, Snake root, or some other of the bitters. If the tonic power resides in any one property exclusively, I think it probable that it is in their stimulating qualities, for tonics are stimulants.

Dr. Cullen says that in the case of Intermittent fevers, bitters do not act as astringents but as tonics, because they do not increase the force of the circulation, but here the Professor should have told us in what manner the Tonics acted.

I think that every tonic is endued with a stimulating quality, but I do not mean to assert that tonics cannot act unless as stimulants. In the heat of summer when the Stomach is very relaxed, cold water, an ice cream, and reducing the temperature of the air, invigorate that organ without stimulating. Some bitters as Columbo, do not stimulate the heart and arteries to increased action, or at least we cannot perceive that they produce this effect. Uva Ursi when taken largely only increase the pulse, one, two, or three beats in a minute. But if tonics do not increase the action of the heart and arteries to what cause can we ascribe the heat of the stomach, flushed face, and depressed eye, which occur after using them? The Yellow gentian is nearly as pure a bitter as Quassia, and another who employed it very much in Intermittents says that it sometimes does harm by its heating quality. Bark injudiciously employed has increased the paroxysm of an Intermittent fever. Actual experiments have proved the stimulating effects of tonic substances upon the pulse.

Dr. Walker in his Inaugural dissertation, to which I refer you, has proved the stimulating powers of Dog wood, and the red willow, and indeed no substance produces an immediate sedative effect upon the pulse. But even if we could perceive no stimulating effect upon the pulse, it is by no means safe to deny on this account its stimulating powers of

these, or any other substances upon the system. A great internal action might be going on, without any sensible indications of it on the pulse; as the stimulus of a substance is by no means proportionate to its effects on the pulse.

I believe at present that the various individual tonics, would form various grades in a nicely arraigned scale of Stimulants. Such a scale would require a great deal of care in the formation, and probably we shall never live to see it made. Silvester Douglas in the University of Leyden 1766. published an ~~an~~ Inaugural (Speach) dissertation, in which he asserts that all medicines possess a stimulating quality, and that all stimulants are the of disease of the body. In this dissertation I think we might find the germ of Dr. Brown's system in medicine.

According to Chemists, the bitter principle which is inherent in Substances, differs essentially from every other quality they possess. Dr. Cullen did not understand its nature, he says it produces a simple undefinable perception; nor is it even at the present period completely comprehended. Very few Chemical re agents have any sensible effect upon the bitter principle. There are only two substances as yet known which throw down any of it; these are the Nitrate of Silver, and the acetate of lead, the fist makes it muddy, and a small soft flaky, yellowish precipitate falls down gradually; and the latter produces a copious white sediment. Thus much however we can say respecting it, that it appears to be a simple indivisible quality. The deleterious effects belonging to some of the bitters are merely accidental. Bitters have a peculiar

odour—

contrary to Cullen's assertion; which I denominate the bitter odour; I do not think that the taste of the articles under consideration depends upon any essential oil which they may contain, because some of the strongest of them have neither an acid, or an aromatic taste. All the aromatic bitters and tonics, whither vegetable or mineral are stimulants and cure diseases by keeping being so. Cullen says that they are inodorous, and therefore useless alone; he also justly observes that when taken into the stomach, they increase the appetite for food and promote digestion, and this he thinks depends upon their increasing the tone of the stomach, or rather the muscular fibes of it. It is indeed true that bitters increase the appetite, and promote digestion, but Doctor Cullen's method for accounting for this effect is not satisfactory. The process of digestion is not carried on by the muscular fibres of the stomach, but by the gastic juice, and dispepsia is owing to this fluid being of either a bad quality, or insufficient quantity. The muscular fibes of the stomach, merely serve to expel its contents. The ingenious Dr. Darwin was of opinion that bitters act by promoting the absorption of chyle in the Intestines. That they do not promote the absorption of chyle no one will doubt, they likewise induced a good appetite as well as promote digestion. I believe that they stimulate the vessels of the stomach to a more copious, and healthy action, and thus produce the good effects which result from them. This idea is in some measure confined by (adversity) adverting to the fact, that many stimulants likewise increase the appetite and promote digestion, as Mustard, Pepper &c.

Of the diseases in which Tonics are used.

The bitters are employed both externally, and internally. They have been used for cleaning foul Ulcers. From their antiseptic quality they have been made use of in Gangrene, but as they are stimulants they will be hurtful when the disease is accompanied by an increased action of the vessels. This subject I shall more fully examine when I come to treat of Bark. Bitters have been employed and with great advantage in Costiveness. This depends upon two different causes. In persons of a Sedentary life it often arises from a want of tone in the Intestinal canal, In this case bitters restore the lost tone, and bring back the healthy action of the parts; We generally however have it in our power to resort to more certain remedies — Purgatives.

Bitters or Tonics in Venereal Obstructions are mostly inefficacious. Opium in one state of the Intestinal canal purges, and in another constipates.

"As the matter of bitters" Says Cullen is often carried to the kidneys, so it is probable that they promote the secretion of Urine" but he thinks they cannot be employed to any advantage as Diuretics. The fact is they are diuretic in many instances, and sometimes have been found useful in Dropsy. Probably they in some instances act directly as diuretics by increasing the tone of the stomach, thereby enabling it to digest more food; and increasing the quantity of urinary secretion. Digitalis and Squills are both bitters and diuretics, the artichoke is diuretic, and the juice of the Lactuca virosa

is said to be very generally so. Opium is often diuretic and has been prescribed in Dropsy; Many other of the bitters are diuretics. When combined with the alkaline Salts, they are often useful, and seem mutually to increase each others powers, and in my opinion the practice of exhibiting tonics in combination with diuretics, in dropsies, is too often neglected.

Bitters are useful in preventing the paroxysms of Intermittents, and particularly so when joined with adstringents. Some authors have thought that the union with the adstringent principle was indispensible in cure of Intermittents; the bitter Almond however has cured them though totally destitute of adstringency, and the bitter emulsion which contains not a particle of the adstrin= =gent principle has effected cures where peruvian bark failed.

They have also been used in Continued Fevers; but in the Inflammatory stage they must be per= =nicious, particularly the callidamara. After the pulse has been reduced by bleeding, purging, blistering &c. They may be advantageously employed. The Centaury and Chomomile were much used in the Yellow Fever of 1793. but not untill evacuations had been employed. Doctor Cullen however doubts their utility in continued Fevers; but he allows their good effects when the fever assumes a putrid tendency. Bitters may be useful in the first stage of Typhus.

They have been recommended in Ricketts, either as a preventative, or cure. They may perphaps be useful at first, but after the matter has began to be absorbed they can do no good. I have however

had no experience of them in this disease.

Bitters are occasionally Sudorific, though Dr. Cullen says they are not so when unaccompanied by a Sudorific Regimen, and when not taken in large quantities. They are often purgative, and this confirms my opinion that they possess a stimulating power, and pointed objection it is to Dr. Darwin's idea. From this purgative quality they may be therefore beneficial in Spasmodic colic, Diarrhoea, and Dysentery. The indiscriminate use of them however in these diseases is highly dangerous.

They are said to be emenagogues by their stimulating power, though I do not deny however that some of them may be Emenagogues. In combination with Tonics they are useful in the white fever, Febris Alba, or (Chol) Chlorosis. They have never yet been found useful alone, but I think they might if persisted in, especially if combined with well regulated diet, and exercise be found extremely useful in a number of cases. They are said to be Anthelmintic and poisonous to worms, but as such, they are not very powerful.

In this part of my course I have been accustomed to speak of bitters as to their effects in relieving Gout and Nephritis; but for the present I shall postpone the discussion of this subject. I will only here observe that at least one half of the cases of Nephrites occur in Gouty families, or constitutions. The death of the Duke of Portland is announced in this days paper: he died in the 73rd year of his age of an Epileptic fit consequent to the operation for Calculus. This is another instance of the union of Calculus with gouty symptoms.

Many bitters are endued with a Narcotic, or deleterious quality as opium, and the bitter Almond, and Doctor Cullen thinks it a quality of the bitter principle, and in confamation of this opinion, he says that the strongest bitter we are acquainted with, the Faba Sti. Ignatii, has a great deal of this deleterious quality. This I do not however believe, and suppose this quality to be merely an occasional concommittant. The red bark when pure and pretty largely given is said to produce in some constitutions a great anxiety about the breast, and I suspect that the Peruvian bark, and particularly the red bark, more frequently than is imagined produces some such disagreable effects. Some late experiments tend to discourage the idea that Bitters are injurious, some of the purest being used for a great length of time without producing any prejudicial effects upon the constitution; but it is improper to reason from the effects of bitters upon Brutes, or upon a few individuals of the human race, respecting their general effects upon mankind.

Watery and Spiritous menstrua may be employed to extract the bitter qualitys of substances, but they are always to be preferred in an (~~acetic~~) entire state if they can thus be exhibited. When the stomach will not bear them in substance, we are compelled to have recourse to infusion in cold, and warm water, decoction, trituration, and extraction; also to Digestion in the Digester, and Tinctures Spiritous and vinous. Digestion, Infusion, and Decoction, should always be performed in close vessels.

We come now to direct our attention to the Individual Tonics, and shall treat of them as they

are derived from the Vegetable and mineral kingdom, commencing with the former, and following Dr. Cullens order of them.

Of Vegetable Tonics

Gentiana Lutea.... Yellow Gentian.

This plant is a native of the Old World, and has not hitherto been found in America. The root which is the part used in practice, grows cylindrically to the heigth of several feet, the bark is brownish, but internally the root is yellow. Both the bark and the wood of the root is used. It is very bitter but less nauseous than some other of the bitters. Both water and spirits extract its virtues.

The virtues of Gentian are numerous. It has been recommended in Debility and in Nervous Fevers, and it promotes appetite, and digestion. Dr. Murray is of opinion that the best method of using it is in a vinous Tincture of which the following is his formula.

Elixir Stomachic

℞. Orange peel – ℥vi
Extract Gentian ℥ss
Port wine ℔ ii m. dose a spoonfull.

another.

℞. Cort. peru. pul. ℥iv
Gentian
Cort. Aurant. aa ℥iss
Aq. vit. Gal. ℔ iv. m.

Let stand in a sand bath for four days and strain them. dose, a table spoonfull every morning and evening, with two, three or four of water.

The Gentian has been used in Hysteria, and for preventing the paroxysms of Inflammatory Gout. The Tincture is said to have been useful in Gouty cases of long continuance. Linnaeus asserts that it is useful in Calculous complaints.

In Intermittents some writers think it equal to Peruvian Bark, and it is said to be more constant than the Bark, particularly when joined with nux ~~m~~ vomica, but Dr. Cullen says in many cases the Gentian alone has fallen short of the Bark, but that joined with galls or Tormentil in equal parts it did not fail of curing any of the Intermittents of Scotland, in which he tried it. I use it in substance, and think it the best form. I esteem it highly as a tonic, and scarcely if at all inferior to Columbo. It has likewise been used in Scrophula, and like many of the bitters in Worms.

The Tincture of Stoughton, which is so much celebrated, resembles the Elixis Stomachicum, or Tinctura Amara of the Edinburgh Pharmacopoia. Dr. Shaw recommends this Tincture to be poured upon half the quantity of fresh materials, in order to improve it very much. I generally use it in substance with the Rubigo Ferri.

Phazerd.

(: called Columbo in Tennessee, Kentucky & New York)

This is a very pure bitter. I discovered it myself in the vicinity of New York, where it grows very abundantly. It bears a great resemblence to the yellow gentian, and is very little inferior to Columbo. It possesses the the smell which I have mentioned as belonging exclusively to bitters, and it grows to the height of four or five feet from the ground. The root is large and when cut traversely and dried, is very much like Columbo, and as such I believe the Druggists of our City have frequently imposed it upon the Physicians. The best Season for procuring it is when the leaves are Drying, and the Stem about to decay.

Gentiana Centaurium. Linnaeus.

Or Centaurium minus, or lesser Centaury Is a Species of gentian, makes a good substitute for the Lutea, and grows over the whole Continent in different places. It is not the plant sold in Philadelphia under the name of Centaury. The leaves and Stalk are principally used; water, and spirits of wine are its proper menstrua, and the former exactly likewise its mucelaginous parts; the preparation with wine is better than that with water. Dr. Murray prefers this species to the Gentiana Lutea because it was a native of his country, but it takes up more of the menstrum. When taken to the extent of ℥ii it purges pretty violently. It has been supposed to be a (feb) febifuge, and has been employed in Intermittents, but Mr. Senac found that it increased the febrile heat.

In almost all ages it has been employed to relieve Gouty affections, and to relieve the

Inflammation

It has been used in Jaundice, and when this depends upon a torpid state of the intestinal canal, independently of Calculi or any obstruction in the biliary ducts it may be useful. It would be proper for us to try our (medicine) native Centuary, and it is not impossible but that some may be found more valuable than any hitherto discovered. In New Jersey and in Pennsylvania there grows a gentian with very narrow leaves, which is apparently very fine. It bears large blue flowers. It is like the gentian Linneanis of the Botanists.

Chirona Angularis (Lin)

This plant is brought to market under the name of Centaury, but is very different from the true plant of that name. The blossoms of this are bitter, and it is one of the most important of the bitter plants that can be employed. It is a very agreable article to most of those who take it. It grows very abundantly in this City, and in many parts of the United States.

Quassia.

Of this there are three kinds. 1st the Quassia Amara, 2nd Polygama, and third Simaruba.

The Quassia Amara grows spontaneously in Surinam, South America, and St. Croix. It is said to be destitute of Smell, though

I can perceive a very distinct one in it. The bitterness of this plant is not a disagreable one, and pervades every part of it, the wood, bark, blossom, seed &c. but is more powerful in the wood, bark, and root, and most powerful of all in the bark. A single scrupule of the wood will impregnate with its bitter taste one gallon of water. It is found to be less antiseptic than bark, and is generally inferior to the yellow gentian.

The Quassia first acquired its celebacy from being used in Surinam by a Negro Doctor, by the name of Quassia, who was very successful with it in the fevers that are common in that County, the secret was purchased from him by Linnaeus. It has been used by Dr. Splager in Bilious Fevers, and it has also been employed by Dr. Munro in fevers, who gave it in powders. In continued Fevers it is said to be more valuable than bark, by not increasing the heat of the system so much as that important article.

A Physician of St. Dominique says that it is useful in Dropsy. It is also useful in the Atony and Debility succeeding fevers, in the Atony from Hysteria and in Nervous Debility. In the first of these cases it has been used by Dr. Letsom but his formula is too long. The following is a very good one for exhibiting the medicine, and is thus given in St. Dominique.

℞. Raspings of the wood ℥iv
Best Cog Brandy gills j
River Water gts ii. m. In fevers however it is best to give the wood pulverised, and in substance.

The Quassia is sometimes used with advantage in Gout, I am not sufficiently acquainted with the nature of those cases in which it was found useful, and I suspect that its virtues have been over praised. In Calculus it will at least mitigate the pain, and lengthen the paroxysms. In habitual Diarrhoea it is also useful in combination with absorbent medicines, and with Columbo. here it increases the tone of the Stomach. In Dyspepsia it is very useful, and was employed by Dr. Haller. I have made much use of Quassia, and it appears to me the most important of the bitters, patients will I think continue longer on the use of it than any other bitter; and less injury too, I think, result from the continued use of it, than of any other. The bark should not be thrown away as is commonly done.

The Quassia Polygama is a tall tree growing in the Island of Jamaica, but it is not so valuable as the Quassia Amara of Surinam: It is however employed with some effect in most of the diseases in which that is used. Both the wood and the bark, are bitter, but the former more so, and in this respect it differs from the other species. The common dose is gr XV alone or combined with the peruvian bark. It has been much employed in the

Pica of Linnaeus, or vitiated appetite, where the patients have a strong desire for different earths &c. It is cured by the use of tonic medicines.

The Quassia Simaruba is a large tree growing in Cayenne, and St. Dominique. It is called mountain or bitter Dawson. It is a pure bitter, does not appear to have any adstringent, or mucilaginous parts, and water or spirits of wine extract its vertues. It has been recommended in a number of diseases, but particularly in obstinate Dysentery. In the Year 1753 many of the Inhabitants of Paris were attaked with a Dysentery which resisted every other medicine but the Simaruba. It was aggravated by the mildest purges, and even Ipecacuanha. Dr. Munro informs us that he has frequently used it in Dysentery and Diarrhoea to the extent ℥ii to ℥iii in the twenty four hours, and commends it highly. He sometimes added a little laudanum. It is useful also in obstinate Colics, attended with fever and ague, and in habitual Colics it has also been advantageously used.

Dr. Cullen does not appear to have a high opinion of our medicine. Dr. Haller on the contrary says it is an excellent Vermifuge.

Columbo

This article is justly considered as one of the most important of bitters. It has long been been known, and was mentioned as far back as 1685. Botanists have not yet been able to discover the plant of which this is the root. It is however a herbaceous plant

and perhaps of the Phrazera. It is a native of Africa, and has been called Columbo from a City in that Continent. It is a strong but agreable bitter with some what of a pungent taste, and is rendered more agreable by adding Orange peelings to it. It gives out more of its vitues to spirituous than watery menstrua, and is proved by experiment to be antiseptic, on which account Doctor Percival thinks it would be useful in the Yellow fever of the West Indies, but it is very unsafe to reason in this manner. Dr. Cullen with judgement denies its power of curing a putrescency of the bile, in an increas'd or depravation of which fluid it has been used. The Columbo though somewhat of a stimulant is less so than the other bitters. Dr. Blank thought that Columbo and gentian might be given in complaints of the bowels, and Stomach, without regarding the state of the pulse; but I deny this and say that in exhibiting them we must pay very great attention to the state of the pulse.

In Intermittents the bitters do harm if given during the paroxysms, or just as they are coming on, less however than the bark, The Columbo is not so powerful a remedy for Intermittents as the bark, but it is better adapted to some cases of these fevers, as when the chills and succeeding fever are less violent than they generally are, and the constitution of the patient is very delicate. I think the watery infusion of the Columbo a useful medicine in the pulmonary Hetic Fever, not however to be exhibited during the

paroxysm.

I take the watery infusion to be preferable to the Spirituous.

Doctor Cullen has employed Columbo in Dyspepsia with great advantage, and I have done the same, It must be given in substance in large doses, and continued for a considerable time. It is of much importance to give it in substance, it being less nauseous then, than in Infusion. Our medicine has been used with advantage in Dysentery, both in France and Holland. Cullen informs us that this practice does not prevail much in Great Britain, and it is not much followed in the United States. I think however that in one stage of the disease the infusion would prove useful, I mean in the griping and tenemus, when they are supported by debility, the purging plan being carried too far. I candidly confess this has been done by me, and I have been misled by the purging & griping.

In the East Indies the Columbo has been used with very good effect in Cholera Morbus. It is thought to check the obstinate vomiting. Mr Johnson has used it there with great success, he gave from ℥ss to ℥ii which are larger doses than the Citizens would bear. It has also been used in the vomiting in Bilious Colics; Dr. Percival advised it in the Diarhoea in Children from Dentition.

The dose in substance for an adult is gr v or vi four or six times a day. In Intermittents it will be often necessary to give ℈i four

or eight times a day. I have said that it gives out more of its vertues to spirituous than watery infusion, but the watery infusion is less nauseous, though it is very perishable particularly in warm weather, and therefore I prefer upon the whole the exhibition of it in substance. I never prescribe the Tincture of it, or any other bitter.

Zanthorisa

Doctor Woodhouse has published a Dissertation on this article, to which I refer you, he has probably praised it too much.

Lichen Islandicus (Linnaeus)

This is a specie of Moss and grows in our own Country in New Hampshire. It contains a large portion of Mucilage, to which the bitterness adheres, and may be seperated by hot water. When thus deprived of its bitter taste the herb makes a pleasant Pottage, which is used by the Icelanders. It is likewise used as a diet by the Indians. The Lichen is considerable bitter, and this bitterness which is firmly united to the mucilage has been absorbed into the circulation, there is very little adstringency in it.

It has been used in Europe, particularly in Vienna, and in the United States in **Pulmonary Consumption**, Bergius used it boiled in milk to the consistence of a pap, and drank of it ad libitum, he thought very highly of it, and Professor Scopoli has published a dissertation in which he praises it very much. It is said to be less beneficial

in the Inflammatory species of Consumption, than in that proceeding from general debility; It acts chiefly by its tonic power. It is said to lessen the Cough, to render the perspi=
=ration more free, and to diminish the Inflammatory symptoms; when tubercles are in the lungs it is not ad=
=vantageous. I suspect that its use in Consumption is owing to the large quantity of mucilage which it contains. Consumption is a disease much aggravated by incautious diet. The patients should adhere to a mild vegetable diet. It has been employed in Ulcers of the Kidneys and Uterus. In Diarrhoea, and in Dysentery; In Pulmonary consumption an eminent Physician of this City uses small doses of it with Ipecacuanha, and confines his patients to a strict vegetable diet; the latter I suppose is the principle agent. I have had no experience of the beneficial effects of this medicine. I have not been able to procure it in this City, except at a very high price, and in an impure state.

Lupulus communis. Hop.

This is not a pure or simple bitter, as Dr. Cullen supposed. It is however a very agreable one, and is less understood than from its merits we should suppose it to be. It does not exactly resemble the com=
=mon aromatic bitters, a strong decoction of hops has moderated the pains proceeding from Calculus.

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It has been said by the respectable Mr. Ray that since the liberal use of Malt liquors has been introduced, the number of Calculus complaints is considerably diminished. I however cannot ascribe to the truth of this assertion; these liquors were introduced into England in the 17th Century, and long after this Sydenham speaks of the great number of Calculus complaints that prevailed during his time; he asserts that after the long continuance of Gout the patients becomes subject to Nephrites. — Darwin says that Malt liquors do not stimulate the absorption of Chyle, and that they promote calculus. Erasmus was of opinion that the use of them always brought on him a fit of the gravel; but Cyprianus, a Surgeon, is said to cut fourteen hundred persons for the stone, none of whom were porter drinkers, but the greatest part fond of wine. — Doctor Dobson thinks that the good effects of ale in preventing calculus, are owing to the carbonic acid which this liquor contains; I am of opinion however that hops incline to Calculus and Nephrites; I have frequently been seized with Nephritic pains after indulging in the use of malt liquors, but this may be possibly owing to idiosyncrasy; The disease of Calculus in the bladder is almost expelled from Prussia; Those who still suffer there by it are said by Professor to have abstained from the use of Tea and Coffee, and adhered to the use of strong Malt liquors. In that Country Calculus was formerly so common as to be called the endemical disease of it. From what I can learn Gout & Rheumatism are very common there. —

Hop is a tonic, and a very good one, and accordingly we find an infusion of hop flowers useful in all cases of Debility, and particularly that succeeding the excessive use of Spirituous liquors. Porter drinkers in Marshy Countries are said to be less subject to Intermittents than brandy drinkers. — Haller informs us that Doctor Boerhaave thought Porter more capable of inspiring strength than wine, and in this I agree with him, and accordingly we find Porter so very useful in the lower Typhus. I think however that the constant use of Porter is more (cæp) injurious to the system than good sound wine, and from the use of the former I think more render themselves useless to society than those who drink wine. hem! Old Bag

The hop is narcotic, so much as to deserve a place under the head of narcotics. The vulgar have believed that a pillow of hops would induce sleep, and it has been prescribed and used in that manner in this Country. Linnæus was the first author who mentioned the narcotic property as belonging to our plant, and Dr. Lewis (presented) prescribed it for the king of England during his Insanity; Porter has the effect of increasing the fullness and frequency of the pulse.

An Anodyne Tincture is prepared from the flowers of hops, which has similar effects, or nearly so, to those of opium; I have taken it myself and administered it to others, and I think that it might frequently be substituted for opium, of the Tincture of which

it contains about half the strength. It may be advantageously given to patients with whom (to use the common phrase) opium will not agree; This I have experienced in myself as well as in others, opium with me produces pain in the head, itching &c.

Tincture of Hops.

Infuse for eight or ten days
of the best Flowers of hops ℥iv
In Rect. Spirits of wine ℥viii.

Agitate them frequently, Keep it while preparing in a Temperature of 80 or 90, and decant at the end of eight or ten (~~days~~) days; the dose is gtts 60. 70. or 80. Sixty drops of the tincture thus made will generally be equal to about twenty of laudanum, and sometimes much stronger.

The hop is at present very much used in England, and it was a very favourite medicine of Dr. Mountsey. This Gentleman informs us that his being known in the literary world as a literary Character was to be ascribed, entirely to hops. "My parents" says he were poor, but honest and accustomed to support themselves in some measure by the sale of hops, which they raised; at one time when hops commanded almost no price, and that of feathers were very high, my Mother ripped up her beds, sold their contents, and filled them with hops. In a few Years however the scene was reversed, feathers became extremely cheap, and hops being scarce, sold very well, My Mother now resorted to the

stores of the latter article, and sold them at a very advanced price: the profits thus made were improved, my parents finally attained to easy circumstances, and thus my family literally hop'd into notice."- This same Gentleman, when he wished to extract a tooth, fastened it to a bullet, which he introduced into a pistol, and fired it out in the direction in which the tooth was to be pulled. This he says is the easiest of all methods.

Menyanthes Trifoliata

This is a Native of different parts of Europe, and of North America. It grows on the Swamps of Jersey at no great distance from this City. It has been used in Edinburgh to prevent the paroxysms of Inflammatory Gout, and also with advantage by Dr. of Venice who employed the expressed juice. Dr. Cullen says that that this plant does not lose its strength when dried. It is extremely bitter but contains no peculiar acrimony in its taste or smell. It turns green vitriol black which proves some degree of astringency. In doses of ℥iii it purges. Berguis says he has found it useful in Autumnal Fevers and in Asthma. I have never employed it myself. It has been used with advantage as a Lithontriptic and in Itch, and in England in other cutaneous affections.

Centaurea Benedicta.

This is a Native of Spain, Scios, and some other of the Grecian Islands, and is a pretty simple and pure bitter, having a disagreable smell, which goes off when dried. Cullen says that it does not posess all the properties which have been ascribed to it, and that it is very properly exhibited in infusion, provided it has not been in the water (which is to be boiling when the plant is put in to it) more than twenty four hours. Antient authors say that it is very useful in Cancers. It is an antiseptic and assist the operation of Emetics; some say that it is even better than certain individuals of that class of medicines.

Fumaria Officinalis.

This is a Native of Europe, and is so common in this Country, that it appears like a native. It is a bitter without odour, and when exposed to coals efforesces like nitre: When dissolved in water it also produces a kind of Salt. Dr. Cullen Informs us that he found it useful in Cutaneous affections, and it is said to be a sweetner of the blood. Dr. Thompson tells us that he cured a Leprous affection attended with induration, by giving twice a day, Three, or four spoonfulls of the juice. It is purgative, and diuretic.

There are two articles the Hydrastic, canadensis, which is a valuable bitter, and of which I have published

an account in my collection; and the
which I have been accustomed here to mention, but have not
time at present, and therefore refer you to my work on them,
they are Natives of this Country.

Helleborus Trifolius.

Is a Native of our Country, a strong agreable bitter, and when chewed gives a beautiful yellow colour to the Saliva: It has the common properties of the other bitters, but possesses also some peculiar virtues. It is employed in New York and Jersey, and is a very useful bitter in Marshy Countries. It is found of great use in that singular affection called Rafters Sore mouth. This disease is not caused as has been supposed by the use of salted provisions, but is a kind of Intermittent.

Rheum Palmatum.

An infusion, or Decoction of this Root is a very good bitter, and at the same time keeps the bowels open; we shall speak more fully of it under the head of Cathartics to which class it justly belongs.

Grey Nicot.

This has began to attract attention. It is a Native of the West Indies: The seed contains a faranaceous matter, which is made use of. Doctor Neil says it is very useful in Chronic diseases; as a bitter it has been recommended in Febris Alba, and in Weak=
=nefs

of the genital organs. I have never used it myself and only mention it in order to induce you to attend to it.

Anthemis nobilis. Chamomile.

This plant is a Native of Great Britain and is cultivated in most of the gardens of this Country. The leaves and flowers have a strong smell but not an ungrateful one; and the latter which are the parts employed in practice are a strong Stomachic either in powder or infusion. They have been used in Diarrhœa and Dysentery, but in the former, by moving the intestines, they prove injurious, and for the same reason they are useful in the latter. They are used in Spasmodic Colics, and in Flatulencies.

Before the introduction of Peruvian bark in Intermittents, the Chamomile flowers were thrown in between the paroxysms; and here they were used by the Physicians of Greece, and Arabia: Dr. Hofman had a high opinion of their utility in those fevers. Dr. Cullen employed them according to the rule of Hoffman, by giving several times during the intermission from ℥ss to ℥j of them in powder: he found however that given in large quantities they ran off by stool; he therefore combined them with an opiate, or an astringent, and by this method effected cures. Bergius combined them with Peruvian bark, and found them very useful.

Tanacetum. Tansey

This is a powerful bitter though not so much as Chamomile, It possesses a strong odour. It was entirely neglected in practice untill introduced and strongly recommended as a remedy in Gout by Doctor Clark, he advised the recent herb to be made into a Tea, and half a pint of this to be drank every morning; sometimes it proved laxative, and sometimes diuretic, and in others it produced no particular effect. Doctor Cullen says he has not learned the fate of Clark's patients, but that he had been informed of many persons who drank this tea, some without effect, while others reported that they had been relieved from the frequency of their paroxysms. Dr. Gardner supposes it to be rather an innocent article. It is however a powerful Anthelmintic, and has been much used in intermittents.

Artemisia Absyntheum. Wormwood

This is a very intense bitter, it gives a taste to the milk of Cows, and the flesh of sheep feeding on it. It has a strong and peculiar smell and gives out in distillation an Essential oil without bitterness; and after yielding this oil it still retains its bitter taste, and therefore deserve to be used. Wormwood has been said to possess a narotic or deleterious quality. Linnaeus however tells us that persons who have used it for six months receive no injury from it.

Doctor Cullen was of opinion that it does contain something deleterious to the sensibility and irritability of the nervous system, and I am inclined to coincide with him. Dr. Haller prescribed it very frequently.

The Wormwood has been used in Intermittents along with the juice of bruised cloves, and we are informed, successfully. Half a table spoon full of the mixture is taken in wine several times during the the Intermission. Dr. Haller tells us that it is a useful remedy in Gout, and it has also been advantageously employed in Nephritis.

Aristolochia longa

This plant is a native of

and is considerably bitter and acrimonious. It is said to be an Emenagogue. Dr. Cullen says that in Chlorosis he found it useful as a warm stimulating medicine, but never of advantage in suppression of the Menses. It has been much recommended in Gout, and constitutes one of the Ingredients of the celebrated Portland powder.

℞. Root of Aristolochia
Tops of Gentian
Leaves of Chamomile
Leaves of lesser Centaury ~~aa~~ pars equalis.
Make it in a powder, and take of this
ʒi every morning fasting; It is to be continued thus for 3
Months

without intermission. gr XIV are then to be taken daily for the succeeding three Months; ℥ss every other day for the second month, at the end of which time its effects will be perceived.

The medicine operates slowly, but certainly has done a great deal of mischief, though it long suppressed the paroxysms of inflammatory gout; but the same effect is produced by ardent spirits. It received its name and celebrity from a Duke of Portland who was cured by it, and published it to the World to the injury of his fellow creatures. Professor Murray asserts that out of Fifty who have used it, one half were dead before the expiration of the first Year. I think however that the Portland powder has not produced all the evil which has been ascribed to it. The Aristolochia perhaps has been more injurious than any of the other ingredients. Dr. Boerhaave says that the long continued use of it has destroyed the villous coat of the stomach. I believe that Gout generally terminates here, in the same manner as in England, namely in hydrothorax and other dreadful affections, though no Portland Powder has been used.

Serpentaria, virginiana. Virg. Snake-root.

This is a species of Aristolochia and is called the Aristolochia by Linnaeus. It has been found only in America, and probably possesses the same powers

with the longa, but its taste and smell are more agreable. It has an aromatic smell and a warm, bitterish pungent taste: By distillation with water it gives out its bitter, but very little of its essential oil. The watery infusion yields (the strongest) from one to two drachms, and the spiri=tuous infusion one, which is the strongest. It contains little or none of the adstringent principle. It is considerably tonic, and at the same time stimulant. It is more stimulating than bark and scarcely ever fails to raise the pulse; this is so considerable that in many cases we must use it with great circumspection, particu=larly in continued Fevers. This serves as a great objection to Cullens idea; that none of the bitters are stimulants. —

Sir John Pringle says that in the third stage of Putrid malignant Fevers; this is an invaluable remedy combined with the Peruvian bark. It is sometimes given in powder in the dose of ℈ii or ℥i. It has been given in the Plague when the patients are much debilitated. I think however that here it would do less good by its tonic than harm by its stimulating quality. In the Plague at Moscow Morton says he used it effectually, when the patient was much weakened, either in solution in water, wine, or ardent spirits. Sometimes in powder to the extent of ℈iii Dr. Hilary has prescribed it in Yellow fever, when the pulse was much reduced; for further information on this subject I refer you to his work on yellow fever. —

A Case has fallen under my Notice in the Alms House of this City, wherein, the Snake-root succeeded in restoring obstructed Lochia. after baffling all the attempts of every other Medicine

J. McBn

In Intermittents Dr. Sydenham used it successfully with wine, before the accession of the expected paroxysms. In all fevers in which it is safe to combine bark with wine, he thought it more proper to combine snake root with the bark. This is very correct; when the the stimulating quality of the Bark is improper this combination will of course be more so.

Dr. De Normandy inform us of a fever which one time prevailed at Bristol, and which he called the Putrid Pleurisy. This disease was generally fatal to those whom it attacked: It was attended with a pain in the side, and was confined to no particular spot. It first appeared in the beginning of November accompanied with genuine carbuncle, the pulse was generally full at first, but sunk very much after a single bleeding, and he lost all the patients whom he bled. The Doctor succeeded in the treatment of this disease by administering a strong decoction of the snake root; this first induced a slight vomiting, and afterwards threw the patient into a considerable diaphoresis. This affection appeared generally in Marshy Countries, and is more common in Male adults, the pulse is very apt here to deceive the Physician, and we must not trust to it, for it would indicate a liberal use of the lancet.

The Tincture of the Snake root is thus made.

℞. Snake root ℥iij
Proof Spirit pts ii. m. Digest for eight days, and strain. dose ℥ss.

Croton Eleuteria. — Cascarilla.

This is a shrub which grows in Jamaica, and the Bahama Islands. It is of a bitter taste and leaves in the mouth a durable heat; while burning burning the smoke has (a durable) an aromatic smell. Water or Spirits extracts its virtues. It was introduced into practice in the 17th Century as a medicine of great virtue, both in Intermittents, and Continued Fevers, but is now pretty generally neglected, and I believe seldom used in this Country. It is a weak substitute for the Peruvian bark, but although like Terpentine it is inferior to the Cinchona, as a tonic however it is well deserving attention. In the Year 1795 and 96 a fever appeared in Norway accompanied with Petechiæ, in which sudorifics were used without effect, and the Casarilla with success even after the appearance of the Petechiæ. I was likewise equally successful in the Dysentery which succeeded to it. If I do not mistake our medicine is certainly a cordial aromatic tonic.

Berguis supposed Cascarilla to be useful in Hemoptysis, but I rather agree with Dr. Cullen that it is improper in active hemorrhages.

I find that the Cascarilla was used

in the Intermittents of Maryland in the year 1785, and it is said with more effect than the Bark. I cannot say from my own experience, but while a Student here, I have seen it used by Drs Shippen and Rush.

Amygalus Amara. Bitter Almond

The fruit which afford these kernels is the produce of a Tree nearly resembling the Peach. It came originally from Syria, and Barbary, and is now much cultivated in Europe. This kernel is a powerful tonic; Bergius used it with Salt of Tartar in Intermittents. It possesses a peculiar deleterious quality which renders it poisonous to Foxes, Dogs, Cats &c. It has been known to cause inebriety in one person, and in another Vomiting. These effects however are very unusual.

Citrus aurantium. Seville Orange

This is an excellent bitter and contains also a volatile oil with an aromatic smell. In Intermittents Dr Bourbon used it with so much success that he called it or Peruvian bark. It has likewise been advantageously exhibited in Quartans to the extent of ℥j every three hours; combined with Gentian and Chamomile flowers, it forms a pleasant bitter tincture. Not many years ago the leaves were said in Holland to be effectual in Epilepsy, and other convulsive affections, and the discovery was at first kept a secret, but was afterwards found out and made known. The flowers also have been used in Epilepsy.

Arnica montana. German Leopards bane. According to Professor Bergius this is an Emetic, a diuretic &c. It has been used in Intermittents, but has not been employed in this City.

This finishes the list of articles under the appellation of Bitters, I have hitherto treated of Tonics possessing bitterness; but I shall now proceed to treat of those possessing adstringency combined with the bitter property.

Cortex Peruvianus. Peruvian Bark

I do not hesitate to say that this article is one of the most important and powerful medicines in the Materia Medica. It is one of those medicines which was not known before the discovery of the New World. It has been a question much agitated whether this discovery was, or was not, beneficial to the World. I might content myself with saying that it is, only from the fact that the Potato, the Turkey, the Guiacum, Ipecacuanha, and the Peruvian Bark, are all exclu= =sively American productions. A very few years ago, even after the death of Linnaeus; only two species of this plant were known; but we are now acquainted with fourteen different species, which I shall briefly enumerate.

I. Cinchona Lancifolia, or pale Bark, is called lancifolia from the resemblence of its leaves to a lancet; it was the first species introduced into Europe

by Dr. Sydenham in the time of King James. It is a native of Peru in South America, and grows upon a tall tree of the thickness of a man's body, but on account of its being cut when small, never attains its growth.

II.d Cinchona Oblongifolia. The leaves of this species are broader in proportion to their length than the former. They are one foot in length, and six inches in breadth; the tree grows to the height of 120 feet, and four and an half inches in diameter. It is a native of Peru, Santa Fee, and other places, and is the species which supplies us with the Red bark. It was not used before 1779.

III. Cinchona Cordifolia. This is a Tree from 15 to 20 feet in length, a native of Peru also; the leaves of the former species were smooth, those of this are rough; It is presumed that this affords the Yellow Bark.

IV. Cinchona Ovalifolia. egg shaped, discovered by Linnaeus in Peru. The leaves are larger than those of the Latifolia.

V. Cinchona Excelsa of Roxbury. It is not a native of America. A very small tree whose medical properties are unknown.

VI. Cinchona Caribaea was discovered by Dr. Wright in Cuba, and Jamaica, where it is called the Sea side Beech, it grows from fifteen to twenty feet in height.

VII. Cinchona longifolia of Sanbergh, a native of Guaina.

VIII. Cinchona Spinosa; a shrub, native of St. Domingo.

IX. Cinchona Phylitica.

X. Cinchona Corumbifera.

XI. Cinchona Linneata from St. Domingo.

XII. Cinchona Floribunda, a native of Jamaica, it proves emetic in small doses, but it is used as a tonic.

XIII. Cinchona Bracticarpa.

XIV. Cinchona Angustifolia.

The plant like these which grows in the vicinity of Savan=
=nah, derived its name from Pinkney, and appears to be a
specie of Cinchona, called Cinchona Pinknoea.

As the Peruvian Bark is exclusively
an American production, so this invaluable medicine
could not have been known before the discovery of this
Country; But it is strange that after that period, so
long a time elapsed as did before the article was known
to the Inhabitants of Europe. We find an interval of
110 years between the time of the arrival of the Spaniards
in Peru, and the introduction of Bark into European
practice. The Comitissa del cinchon, the Lady of the
Spanish Viceroy was in the year 1633 afflicted with
an Intermittent, and was cured by bark by an Indian.
The fame of the remedy soon spread around, and it came
into general use. In honour of the Countess Linnaeus
called our medicine Cinchona. and it has also
been named Jesuits bark from the interest which
Cardinal de Lugo, and the Jesuit fathers took in
its distributation. The Indians discovered its propensity
by accident. One of them (discovered) was afflicted with
the disease, and drank of a pool; which tasted of
Cinchona, from some of the trees having fallen into
it, by which means he was cured.

Though I have mentioned four=
=teen species of this genus, yet a few only of them are
used in Practice, and are therefore necessary to be
know. When chewed in the mouth we find them

bitter and sometimes adstringent. Mr. Martis says the best bark is obtained from the oldest tree, and that from the trunk is better than that from the branches. It should be put into dry chests and preserved from the humidity of the air, and thus kept it acquires new virtues. It keeps better in small quantities than large ones.

Red Bark

This is more soluble than the common bark, also more adstringent, more antiseptic &c. The infusion of red bark will give a red colour to blue paper, in the same manner as an acid. It precipitates lime water yellow; but I do not think it necessary to pursue its chemical qualities. Some of the species have a considerable proportion of aroma. I do not believe that any thing can be made ~~from~~ like the bark from a combination of its principles. Dr. Duncan has dis=covered a principle which he calls (&) cinchonism, but this resides in a much larger proportion in black pepper. For the best account of the chemical analysis of the article I refer you to Thompson's chemistry Vol. 5th but in the present state of Chemistry, it cannot afford much practical knowledge of their properties. The Bark is one of those substances in which a bitter and an adstrin=gent exists in a happy proportion. It is a very powerful tonic, indeed the operation of it upon animals

proves it incontestibly; indeed the operation of it upon animals proves it incontestibly to deserve a place under the head of Roborants. I think that Dr. Cullen was correct when he said that it cured Intermittents by its tonic powers, thus preventing the recurrence of the paroxysms. This is rendered probable by the utility of both bitters and adstringents in their seperate state; but they are not so well adapted to Intermittents as Bark. It is said to act by exciting a new action; and it really does appear to excite a fever of its own; and unless it produces some effects upon the pulse it does not cure fevers.

We now proceed to direct our attention to the use of Bark in diseases, and first in Intermittent Fevers. It is not my province to enter into a detail of the particular symptoms which afflict man in every fever; but I shall attend to matters of more consequence; With the assistance of Peruvian Bark, the Physicians have under their (care) command by far the greater part of Intermittent fevers.

With respect to the time at which we should begin to exhibit this powerful remedy, Authors are not altogether of the same opinion. Dr. Boerhaave advised it to be given "cum morbus jam aliquo tempore duravit." When the disease has continued for some time, or as I have sometimes translated it, when the disease has done a great deal of mischief. His pupil and commentator Van Sweten is precisely of the same opinion, and here they are both followers of Sydenham;

but they both agree that when the patient is much debilitated, or the paroxysm violent, the bark should be exhibited as early as possible. I think it of the greatest consequence to do this, and that it is not necessary to wait for the return of the paroxysms. It was formerly thought proper to give it just before the paroxysm, and this was Cullens practice, but this method was much opposed, and I think it an improper one, for in my opinion it tends to increase the violence of the paroxysm instead of preventing it, the Stomach being at that time very instable; I would not however refuse to administer it when the intermission is very short, or before the second paroxysm of a tertian. The maxim of the Stacklians was to wait untill the morbid matter was excreted from the System, for they supposed that our medicine suppressed this excretion. —— Dr. Sydenham thought too that a morbid matter was emitted during the paroxysms, and that it was improper to check it by the administration of Bark: This absurd notion of morbid matter appears to have originated from the Egyptians. —— Dr. Home supposed that the good effects of the Bark depended on it being absorbed into the blood vessels, but this was incorrect. It is my practice to administer our medicine as soon as possible after the sweating stage, the Physicians should not delay its exhibition when he has reason to expect a violent paroxysm, for a second one will often destroy the life of the patient. In Tertians too we should throw in the Bark

immediately

after the first paroxysm, for the same reason. Dr. Sydenham says that it should be administered as soon as possible, and adds that it (should be) never do harm when given soon, as some are inclined to think; and that when the Bark was not given by the Physicians, or the patient refused to take it, Jaundice and Dropsy always ensued.

Should the Bark be exhibited during the paroxysm? — Dr. Clark whose character and experience rendered his opinion deserving of attention, says it is useful at all times, but more especially during the intermissions of the paroxysms. I have never given it during the hot stage, but I have immediately before, and the effects it produced were very disagreable. I think it more safe to give it in the hot stage in tropical than in colder climates, and more so yet when the skin is moist. It is of much consequence to attend to this, and to the moisture of the tongue, In giving the medicine in the hot fit. —

Is a preparation of the body necessary for the reception of the Bark? — Dr. Cullen thinks that an emetic may be sometimes, though not always, necessary, and that the natural functions are not disturbed by the bark; so that when they are sound, the early exhi= = bition of the bark can do no harm. I think that the simple Intermittent is more or less of an Inflammatory disease, and this being the case, I think previous blood= = letting, and that pretty frequently in some instances is necessary in order to render the bark a perfectly safe medi= = cine.

Without this it would probably be rejected, and consequently be of no use; or if it be retained it will tend to increase the fever; (or if it be retained) I have have been under the necessity of bleeding eight times in an autemnal Intermittent before I could use the bark.

Besides bloodletting I am of opinion that an evacuative medicine is previously necessary: Dr. Cullen recommends an emetic, as he says to excite the activity of the stomach which sometimes prevents us from administering the necessary remedies. The Stomach then on the contrary should be kept as calm as possible. I do not however mean to say that emetics are never of use in Intermittents to prepare for Bark; when they are resorted too, two or three grains of Ipecacuanha, and one or two grains of Tartar emetic answer very well. I would never make use of Emetics here when the patients have vomited, or evinced any disposition to do so, a circumstance which does not unfrequently happen in Intermittents. I think upon the whole that purgatives are more proper, as they act more in evacuating; for this purpose calomel alone in doses of gr vi or viii is well calculated, but the combination of gr v or vi of it with grxv of Rhuebarb is superior; or Calomel with the May Apple of our Country in does of gr iv or v of the former to ℈i of the latter is also good. I prefer Rhubarb to Jalap because the latter is apt to excite vomiting, or at all events Nausea. It is my practice whenever I have been obliged to lay

aside the use of bark in fevers, especially in those of the bilious kind, to recommence it in combination with a small portion of Rhubarb, and from the great advantage I have derived from it I cannot fail in recommending it to you. I have combined Rhubarb with bark even in the first exhibition of the latter medicine with similar advantage.

It has been supposed improper to exhibit the Bark in Intermittents or other fevers, where there are ~~also~~ visceral obstructions; Cullen however thinks that these increased by the recurrence of the cold stage, and that they should therefore not prevent the administration of the bark. I think that Dr. Cullen goes too far here. When the obstruction is accompanied by inflammatory symptoms, It ought not to be given, at least not unless in conjunction with a mercurial purge, but if the obstruction be not considerable, or if no inflammatory symptoms be present, I think our medicine might be given without danger.

There is a kind of Intermittent which (sometimes) may be termed Apoplectic, which sometimes carries the patient off in the second paroxysm, the pulse is here full and strong, and the fever is sometimes of an intermittent and sometimes of a remittent type; during the paroxysm the patient is insensible, and his breathing is sterlorous; after this has gone off he is quite sensible, except when the fever has been a remittent, and in this case he has a wild appearance, continues very sleepy, and the pupil is often enlarged.

In this specie of fever it is necessary to exhibit the Bark as soon as possible after the first paroxysm, and thereby perhaps prevent the recurrence of the second. It is probable that the Bark alone, or given with a purge will often be sufficient to effect a cure; but frequently it is not safe to exhibit the Bark before the pulse has been reduced by Phlebotomy, or some active purge, as Calomel. When it is proper to give the bark, it must be done with a liberal hand, for upon this the cure depends. I should not be willing to trust to arsenic, having never had any experience of it here; I would rather try the Saccharum Saturni; bleeding and purging may relieve the Symptoms, but to Bark we must look for a cure.

In the Catarrhalia Tertiana which appears like the Croup in the shape of an Intermittent, bleeding, and evacuents, are to be used during the paroxysms, but afterwards, and during the Intermission Bark is to be employed. Few Epidemic Catarrhs appear without putting on the intermittent form.

Bark was formerly thought to be improper in fevers where the intermissions are not distinct, though Intermittent and Remittent fevers arise from the same causes; In this Climate I would not in general exhibit Bark in Remittents, untill

after bleeding, purging, &c. and then even, not untill com=
=plete remission appears. It was formerly the custom in
Remittent fevers to give a small portion of Bark a little
before the expected paroxysms. The stomach however at
that time is very apt to be irritable, so much so indeed as
to reject the Bark entirely. I do not therefore think it
useful to administer it, unless indeed where the remissions
are short, or where the fever is violent, and many more
paroxysms cannot be expected without producing fatal
consequences, as in Tertians, where if we wait for a second
fit the patient may die. By exhibiting bark imme=
=diately after the paroxysm, time is allowed for it to
act, and then it may allay if not prevent the succeed=
=ing one. I have had scarcely any experience in
Quartians, but from what I have read, I should
think it proper to exhibit the bark, as Cullen does
before the paroxysms.

Typhus has been supposed to
arise from exclusively the human effluvia; this how=
=ever I do not believe. It arises from the same causes,
with intermittents, and from stimulating agents.
But from whatever cause it may arise, it is at first
an Inflammatory disease, and bark is therefore impro=
=per: This case is the opinion of many others of our
Physicians since the year 1793. In the couse of this
disease it is sometimes one of the most useful remedies,
and at others, highly improper. In order therefore

to distinguish the time at which it is prudent to exhibit the bark, we must be governed very much by the state of the pulse, and by other circumstances. The inflammatory stage continues longer in Typhus than it does in the Yellow fever, and the febrile symptoms particularly Phrenites are quite as violent. I would not advise the use of bark, while the pulse is hard, tense, and full, while there is a redness of the eyes, and the patient is in a phrenetic state. Typhus fever sometimes resembles a remittent, and in this case the time of remission must be chosen for the exhibition of the bark. This is the case too with Serpentaria, volatite, alkali &c. and in the exhibition of these valuable remedies it is necessary to attend to this circumstance. If however the patients be in a Phrenetic state the use of Bark is attended with great danger. The British phisicians tells us that Bark is improper in the first stages of Typhus, but they have not determined the limits of these stages with sufficient precision. In the advanced stages of Typhus, when there are convulsions, twitchings, of the limbs, bark, is of very little use, but opium is the sovereign remedy. I have seen much of this disease, in which it was evidently to me contagious, though I do not believe Yellow fever to be so.

Of the use of our medicine in Yellow fever I cannot say a great deal. The Physicians of Philadelphia however allow

that it was of very little service in the fever of 1793. In my opinion indeed it has done much mischief in this disease, but it is very proper in Yellow fever in some parts of the World. In warm climates in general and in South America in particular. In this climate however I would discard it as a dangerous remedy.

With respect to genuine Pestis or Plague it is a disease that I have never seen. but I am of opinion that many writers have applied the term plague, to both Typhus and Yellow fever. Indeed I am much inclined to think that Typhus, yellow fever, and Plague, are but modifications of each other. This is not a new or individual idea; for Dr. Wm. White has published a treatise in which he asserts that Typhus and Plague differ only in degree; Be this however as it may, Bark we are told has been exhibited in Plague with advantage. It was employed in the 17th. Century by the medical faculty at Naples. Dr. Mc. K. after a residence of Thirty years at Constantinople, says that he knew the Bark to be administered there with great effect; he informs us that bleeding is improper except in plethoric persons, and he exhibited bark together with the mineral acids, at the same time giving Camphor, in order to assist in supporting the strength of the Stomach. Mr. Rutherburn also says that when he was a Surgeon in the Navy in 1649 he used Bark with ~~successful~~ successful among some seamen. In Smyrna however bleeding has been successful in Plague; but Dr. Mc. Kenzie in Constantinople thought bark the best

and most useful remedy. These were probably varieties of the same diseases. I have had patients with what I call plague, with buboes in the groin, and one patient who died with a genuine carbuncle. The only difference which I can perceive is, that in Plague the Stomach is very placid, and will bear emetics, which is not the case in Yellow fever.

There is a kind of Fever which Dr. Cullen calls Syncha. This is always an Inflammatory disease, and sometimes ~~more so~~ very much so. Bark therefore must be pernicious, and in this opinion I believe writers are unanimously agree. Some late Authors however recommend Bark in Inflammatory fevers which have assumed an intermittent Type. This is a practice which I approve not. Sene however used Bark in Pleurisy combined with intermittent fevers, and used it successfully. Torpey forbids the Bark in all primary Inflammations, but allows it in inflammatory complaints which have assumed the intermittent form. I wish you to take notice of this remark of Torpeys, and I believe that many cases of inflammation in fevers occur with intermissions in which Bark is the best remedy that we can possibly employ.

It is not a new practice to give bark in Dysentery. Dr. Mooreton gave it in those cases of the disease which were combined with Intermittent fevers, but only during the intervals between the paroxysms. No doubt Mooreton had many opportunities of seeing Dysentery combined with an intermittent, indeed there is very little

doubt—

but that the dysentery often arises from the fever being thrown into the intestines, agreable to the theory of Dr. Sydenham, This was very well known to the physicians of the 17th century, as well as to those of our own time; and I have seen patients with Dysentery and Yellow fever in the same house, apparently proceeding from the same cause. I have seen Dysenteries in the shape of Intermittents of different kinds as quotidians, tertians, &c. and in these I have used Bark with success both in Private and Hospital practice. I gave it of course during the intermissions of the paroxysms.

It has been said that it may be used when all the Symptoms of fever exist. There may be some foundation for this assertion, because Dysentery appears in a great variety of forms; but the young practitioner should proceed upon this dangerous ground with the almost caution. I agree with Dr. Cullen in advising the bark to be laid aside in recent Dysentery, though afterwards when the disease changes into Diarrhœa it may be used with advantage; I have heard that a Physician of extensive practice near this City is very successful without paying much attention to the state of the pulse; but I cannot credit this, untill I see the case circumstantially detailed. There are many cases of Dysentery in which Opium with the bark is the most useful remedy. A publication of Dr. Douglass which appeared in the year 1766 contains some excellent remarks upon the subject of Dysentery, which I recommend to your perusal, if you can have access to it.

Of the use of Bark in acute Rheuma=
=tism I have had very little experience. But some of the
English Physicians have employed it with advantage
during the intermission of the pain. Dr. Cullen held it
to be improper particularly in the first stage, but he says
that it may become periodical, and then our medicine
may be proper. I have heard an eminent Physician
of this City, who is very much attatched to the bark,
say that he has never employed it in acute Rheuma=
=tism without it proving injurious. Dr. Saunders of
London, on the other hand, has for many years em=
=ployed it with effect, Servanch describes a Rheu=
=matismus febricosus, which is an Intermittent
putting on the form of Rheumatism, and appears
to be nothing more than a genuine Intermittent
affecting particularly the joints. Dr. Moreton who
I believe first used bark in Rheumatism, generally
bled freely, and then used the medicine, which he
said produced good effects. Dr. Hoggath a late
eminent British practitioner speaks of it in the high=
=est encomiums. he began it by the advice of Doctor
J. Fothergill, who employed it successfully in his
own person, after having been largely bled to no
purpose. Dr. Hoggath says that of 121 cases in
which he employed it; in four only was it improper,
after cleansing the stomach, he says "and intestines
by means of antimony, I give the bark in doses of
from five to ten, fifteen, or twenty grains, every two,
three, or four hours, and if this does good I increase
to thirty, or up to forty grains, not going however more

than the patient can bear; I give it either in milk, or decoction, he thinks the bark a very powerful remedy in this disease, and says that when, the patient is treated by bleeding the disease becomes chronic; he adds that Bark in acute Rheumatism is only inferior to Mercury in Syphilis. I think this eloquium rather too high, but I have seen enough Rheumatism to know that it is often Intermitting. I suspect that cures of this kind will most frequently occur in the Marshy countries of Delaware, Maryland, and Virginia. In an acute Rheumatism in the autumn of 1807 the return of the fits was prevented by means of the Bark, but here it is necessary previously to bleed and purge. In a Rheumatism of the head which withstood bleeding &c. I cured one patient by administering the bark.

In Rheumatismus — Hysterious or Dolorice, Bark has been found extremely useful, I am not certain that I have never seen this disease. Dr. Cullen supposes the Bark to be useful here because the blood does not throw off any inflammatory crust; this however is a very erroneous mode of reasoning, for in the yellow fever the bark was ineffectual altho' the blood exhibited no inflammatory crust, and on the other part in some cases where this crust appears the use of Bark is proper, as in acute Rheumatism, and in Gangrene.

In Gout the great Sydenham used Bark, and continued it for a long time. In this

disease

our medicine has been called by a German Physician "a divine remedy". Dr. Gregory says that it may be of-use in Gouty affections, but not to be continued for any length of time. I think that the Bark is proper in irregular gout; a dose of Bark has transferred it to the chest. In the commencement of Intermittent Gout it may perhaps be usefully administered during the intermissions. This practice however will only be proper for those cases in which the patient has not been affected in any important part, because in such cases the bark has a great deal of power in shifting the disease. Dr. Small, says that his gouty attacks were most effectually relieved by taking first an emetic, and then the Bark. I know not what was the nature of his gouty affection.

In Cephalalgia which is an Intermittent, or periodical head ache the Bark is a Sovereign remedy. I have known this disease to yield to our medicine after copious bleeding, blistering, and large doses of arsenic had proved ineffectual. It must not however be given during the paroxysms.

In Hemicrania which attacks only one side of the head, and is also periodical, our medicine is still more important. This disease is often of a gouty origin; though I pretend to say that it is always so. Here also the Bark must not be given during the paroxysm. It must not be given during the paroxysm. It must be treated as an Intermittent, and it is my practice, which I think a proper one, to combine with the Bark a portion of Veleria.

The human constitution is affected by many periodical diseases (indeed I suspect almost all our diseases have a tendency that way) most of which, the bark will cure.

The Cholera morbus sometimes requires the use of the lancet, though not always. Cholera sometimes returns periodically, and when this is the case Bark has been found of much use; Intermittent Cholera has sometimes assumed the form of Quartans, more commonly than that of a Tertian &c. When the Bark is exhibited during the Intermission it is extremely useful.

In Pneumonic Inflammation Bark is found to be improper: The Pleurisy in the head is a disease which undoubtedly arises from the same causes as Intermittents and Remittents; It most frequently attacks those who are in habits of Intoxication, and generally assumes the Intermittent or Remittent Type. It attacks the head and hence its name is derived. It is preceeded by a chill. Though the pulse would indicate bleeding, yet this seems to increase the violence of the disorder; a very moderate vene section makes the pulse sink so low that the Physician is obliged, but too late to fly to cordials, or exhilirating medicines, The most effectual remedy seems to be blistering near the seat of pain, together with the Virginian snake root, and a decoction of the bark. Dr. Mc. Kenzie of Jamaica, Treated this disease, at first by bleeding, and most all his patients

died

he afterwards omitted the bleeding, and resorted to Bark, by which means he did not lose a single patient: This disease has also been known it Italy where it was also cured by means of the Bark. I have spoken with a Gentleman from Virginia who was acquainted with it, and he says that at the very commencement, bleeding, and purging, were very improper. The disease is described in the medical museum by the name of disease.

From what I have said it will appear to you that the bark is very useful in all diseases whether they be of an Inflammatory nature or not, which put on the Intermittent, or ~~Remittent~~ Tertian type.

The Peruvian Bark may be so managed as to become an excellent remedy in Dropsy. This often assumes the Intermittent or tertian form. I once relieved a Mr Read of a kind of a tertain Dropsy of long duration at the present time, I always enquire whether it returns periodically, and If it does I employ the bark.

Even in the disease of Hydrocephalus internus our medicine may be sometimes used with success; I say, and please to recollect it; Sometimes when the disease assumes the Intermittent form; I would not recommend the Bark unless it was used with the greatest caution. I have exhibited it in a case of chronic hydrocephalus internus, in a young lady now under my care. It has prevented the hydrocephalus paroxysms from being violent, and enables the patient to walk about: had it been resorted to sooner, probably it would have effected a radical cure.

The bark has been advised in Phisis Pulmonalis, but as the first stage is accompanied by a phlogistic Diathesis it must be injurious. After the rupturæ vomica it might be used with advantage. Dr. Cullen says, that in nine cases out of ten, the bark was of no use. Dr. Ryde has never known it to do good but has seen it do mischief, But Berguis says that he did not know the Bark to produce any bad consequence, even although the blood was covered with an inflammatory crust. Van Sweiten also approves of this medicine here. The Bark is said to be more efficacious in those cases of consumption in those cases of consumption which arise from recent Intermittents. This opinion I am inclined to credit, as in one instance where the hetic fever was ushered in by a chill, I preserved the patients life for several months by the use of the Bark.

There is one species of Phisis, better described by Dr. Murray than any one else, and which in my opinion is entirely a disease of Debility in which the patient ejects a mucous of a sweetish taste, and not fœtid as in the Phisis pulmonalis. Dr. Huxham has used bark with advantage in it combined with guiacum, Storax, and other stimulating articles; so has also Dr. Murray who has given an excellent description of the disease, and his practice in it. This species of Consumption is not uncommon I believe in this country, and was probably that kind cured by Sydenham, by riding on horseback. It is often and generally curable, which is seldom, if ever the case with genuine consump= =tion are ever restored by the bark.

There is a disease complicated with fever in which bark has been of some use; I mean Catarrhal affections; I think it however a very nice and delicate subject: catarrhs sometimes assumes the form of an Intermittent, attended by violent coughing, in which case I think bark might be used with advantage. The Influenza, is an example of this; Sometimes however catarrhs are perpetual, owing to an accumulation of blood on the lungs, and an obstruction of perspiration. This Cullen says should be cured by invigorating the aorta. Riding on horseback is very useful in this species of Catarrh, but the utility of Bark I think very dubitable.

The Bark has been recommended in Hemorrhages of red blood. These I formerly observed may be divided into active, and Passive. In the former, and I believe most of them are of the active kind, I am persuaded that the bark must be improper. Haemoptysis is generally a hemorrhage of the active kind, and in it therefore Bark is prejudicial, In hemoptysis however returning periodically, it might prove very useful. In passive hemorrhages our medicine has unquestionably been useful. Such are those hemorrhages occurring after fever, and those attendant on the scurvy. There is certainly one species in which I have found Bark very advantageous. I mean Mictus cruentus or bloody urine as it comes from the kidneys. In these I have conjoined peruvian bark with lime water. — That from the bladder however is of the active kind.

In Scurvy the Bark has been used and approved of highly by Dr. Lind, but the late Dr. Scott thought that little reliance was to be placed on it

Dr. Milman relates two cases of scurvy in which he used nothing but Bark and effected a complete cure, They were, he says, induced by want of proper nourishment.

Bark has been found useful as a Dentrifice, I think it is the best preservative of the gums, that we have, but we should avoid combining it with the crystals of Tartar. A diet of fresh animal food is well adapted to some cases of Scurvy. I mention Scurvy in this place because it is often attended with hemorrhage, and often with fever. Dr. Rush very properly thinks Scurvy a febrile disorder.

Hitherto we have spoken only of simple fevers, but we shall now proceed to the Exanthemata or eruptive fevers.

As Physicians have supposed that Bark is favourable to supperation, it has also been recommended in the Eruptive fevers of Small Pox, but Dr. Cullen says he has hardly ever seen a case in which it was proper. For says he says although we should allow that it might be useful to supperation in certain circumstances, It does not clearly appear that these circumstances occur during the time of the Eruptive fevers. I think that when the patient is weak and the circulation languid, Bark may be of some use even during the eruptive fever, because a certain degree of Inflammation is necessary for the formation of the pustules, and this Inflammatory action being sometimes absent, the bark by inducing it is extremely useful. It is a long time since, one of the Munro's advised the use of the bark under these circumstances, and Rosenstein has also resorted to it in such cases. The secondary fever of small pox generally follows the

Eruptive fever, and in it the Bark is often proper, but sometimes it is accompanied with too much of an Inflammatory nature.

The Measles are an inflammatory disease which often requires the use of the lancet; I have been obliged to bleed Children two, three, or four times before I could think them out of danger; from this it is evident that the Bark can be seldom used without injury. The Symptoms requires much attention both from the Physician and patient, and a strict antiphlogistic regimen should be pursued. The hoarseness succeeding this disease would often appear to require the same mode of treatment, and this to be sure is sometimes proper, but Bark is generally effectual.

Erysipelas in this Country is mostly an inflammatory disease, so that Bark is highly improper. In that species of it which effects the face and heart, repeated bleeding, repeated blistering, and frequent purging are absolutely necessary. Dr. Fordyce tells us that the best method of treating Erysipelas is to exhibit ℥i of the bark every hour. In London most commonly the disease of a putrid kind; and in Scotland almost always of an Inflammatory kind. In this City I have seen it of three kinds. In one it is attended with great Inflammation, in another it is in consequence of debility, and in the third it assumes the Type of an Intermittent. In the latter case Bark may be of use.

Pemphigus is in my opinion merely a Symptom of Erisypelas. In most of the cases which I have seen of it, frequent and copious bleeding was very necessary. I refer you to Dr. Cullens nosology for an account of it.

The Bark and acids have been much praised in this vesicular fever, and when it assumes the Typhus type the bark may be very useful. The vesicles are about as large as the end of a finger, and the inflammation very circumscribed; the Inflammatory symptoms are very high, and assumes the most violent forms of Inflammation.

Of the use of Bark in Scarlatina I can say but little, as I have had no experience of this disease except when it approaches to gangrene. Dr. Whethering says that he used our medicine without the smallest advantage; but it has been found an useful remedy by the Physicians of Lancaster, where the plan by bark and wine whey was most effectual than any other.

Scrophula and Ricketts are both thought to be a certain laxity of the system, and are said also to be somewhat connected with each other, though I think them different. They may be partly owing to a laxity of the symptoms, but this is not sufficient to explain their natures. Scrophula is a common disease among our Indians, while Ricketts is unknown to them. Whatever however be their nature Bark has been found useful in both by Dr. Fordyce. Of late the fossil alkali, either alone, or in combination with Peruvian Bark, has been used in Scrophulas.

Bark has been said to be useful in Cancer, but I will not detain you to prove that it is not. In favour of it we have the names of De Haen and Akenside the Poet: together with some others. They have perhaps ascribed to bark the virtues of some other medicines, with which it was formerly combined, as corrosive, hemlock &c.

Spasmodic diseases depend upon a want of tone in the system, and to reason a priori we should conclude the bark to be, as it has been found useful.

When Epilepsy depends upon an atony of the brain, or what Cullen calls a mobility of the system Bark may very (properly) probably be proper; but the disease is often owing to a tungescence of the vessels of the brain, when bark must undoubtedly be prejudicial. Here vene section has been of great use, and I have often drawn blood in such cases, that threw up more, or less of an Inflammatory crust. The Oleum Cajeputi is a useful remedy, and has been used in this disease. This Cajeput is a distilled oil of a green colour, a warm pungent taste, having a smell like that of Camphor and Turpentine together. It is obtained from a Shrub growing in the East Indies. It has been used in several diseases as Chin Cough, Epilepsy &c. It has been used in several diseases combined with peruvian bark. Wernhoff used one, or two drops with ℥i of Bark. Cullen says that when the Epilepsy is periodical and without symptoms of Plethora, he has found the Bark useful. It must be given in large doses, and not long before the expected paroxysms.

Of the use of Bark in Tetanus.

I have not much to say: This disease however in my opinion is often produced by the action of stimulating substances. It has been occasioned by the stramonuim, by the bite of a snake called The Rattle snakes pilot; and I think might be brought on by all

the vegetable and animal poisons, which are stimulants: I once cured a Tetanus from a puncture which was not distinctly formed by bleeding. Tetanus is however often a disease of debility, and we should (dis) carefully attend to the distinction between the different species. I cured one case by bleeding, and a purge, while bark has been useful in others in the hands of Dr. Rush. Dr. Hufsack has undoubtedly ascribed too much to the bark in the treatment of this disease, for his patients took enormous doses of Port wine. For further particulars for this dreadful disease, I beg to refer you to Dr. Rush's communication to the American Philosophical Society, and also to his works.

Chorea Sancti vitis is a convulsive disease in which the bark has been useful. Dr. Cullen thinks that the preparations of Copper, Zinc &c. cannot be used sufficiently long, and that therefore Bark is better and safer. It has been also used here in combination with the Oleum Cajeputi by Wernhoff. In the commencement of the disease it is sometimes attended with symptoms of plethora, which must be removed by the use of the lancet. Dr. Sydenham advises evacuations, and I have known the disease cured by bleeding, this with the other evacuations were extremely succesful in the case of a female in whom I thought it arose from the irritation of Pregnancy. I think however that the disease more frequently yeilds to the tonic plan by the Bark, than to any other. Chorea depends not unfrequently upon a mobility of the System.

In Pertussis or hooping cough the bark is also of use; This disease is often of a febrile

nature

and I have very often bled with great advantage; I have almost always seen it combined with an Intermittent, or Remittent fever, and the febrile symptoms sometimes run very high. I would undoubtedly employ the lancet, and other evacuative means. Cullen says that the Bark is useful when the Cough becomes merely habitual. I have known one case of this disease to terminate in Dropsy of the brain, and another in abdominal Dropsy. The Bark perhaps might do more good if patients would take enough of it during the intermissions. In the year 1772 the hooping cough prevailed in Gottengen, and was cured by the bark. Dr. Morris used it in conjunction with Castor, with much effect. But we seldom find that children will take enough of it. It might become an advantageous medicine applied externally.

In Asthma Bark has been found to be an useful remedy. This disease depends upon a lungesence in the lungs at times; and Bark is therefore in such cases improper. Sometimes Asthma comes on periodically; At other times it depends upon a great mobility of the system, such as Sir John Floyer calls hysteric Asthma, and here I have no doubt of the utility of the bark.

In that dreadful disease Angina Dolor pectoris I have had very little experience, and therefore cannot say much respecting the use of Bark in it. I think that is has a gouty origin, and would therefore use our medicine, if used at all, with the greatest caution. I however once gave it very advantageously in a case of Anthritic

asthma —

It has formerly be used in Hysteria, but is now preety much neglected; I believe that there are certain nervious affections in which the Bark has been found useful, which have been mistaken for Hysteria.

In Melancholia It has been used with great advantage combined with Aromatics, and is very good with Port wine.

In Jaundice bark has been said to be very effectual. It may have done good by its purging quatity, as the disease in persons of a sedentary habit often depends upon a weakness of the Intestinal canal.

In some cases of Fluor Albus Bark is useful; if persisted in for some time. It has also been said to be effectual in Abortis.

Gangrene has been divided by Mr. Hunter, and other writers into two kinds; the first preceeded by Inflamation, and the second which is without previous Inflammation. Mr Hunter thinks Inflammation to be owing to an increased action of the vessels. Gangrene is sometimes owing to too small a degree of action. Much injury has I think been done by giving bark, wine, Snake root &c. in the Inflammation preceeding Gangrene, I think copius vene section and purging are useful in preventing mortification. I suspect that Bark is very useful in gangrene when it occurs in Typhus, that is when it occurs with a loss of tone in the system at large, but never when the pulse is full, and the blood, when drawn, ~~sixty~~ sizy, or exhibits an inflam= = matory crust.

The Abbe Fontana has made some experiments respecting the effects of bark upon wounds occasioned by the bite of a viper, he applied it externally with little, or no effect. I have tried it upon sores produced by the bite of a rattle snake. The poison produced by the emission of these reptiles is extremely stimulating, so much so as completely to destroy the organisation of the parts to which it is applied, and that with extreme rapidity, in an half hour. Bark therefore did no good, and perhaps did harm, most probably indeed a great deal of harm.

Externally applied in the form of a poultice to the abdomen, Bark has been employed for curing Fevers, and Dr. Darwin says that, strewed on a bed it will cure Agues. It is also been recommended to quilt the bark into a garment, and thus apply it to children in Remittents and Intermittents, but not to those above seven years of age. This practice may be useful in children. I once cured an infant of an ague by means of this bark jacket, and found if not taken off after the cold fit it increased the hot one; I would not however restrict this plan to Children alone, for Mr. Rittenhouse adopted it successfully in his own case, and Dr. Jackson of Georgia found Bark wrapped round the wrist to increase the pulse, two, three, or four strokes in a minute. The bark must be always extremely well powdered to be effectual this way. From the effects of this medicine externally applied

we are led to conclude that it acts upon the solids, and not by absorption. The quantity which should be put into the jacket for an adult is about ℥ij or ℥iii, and varied according to the age and strength of the patient.

Another method of using the bark externally is by putting the feet into a decoction of it, and this is also useful. I must not conclude this subject without observing that where bark has failed of curing Intermittents, Mercury and Arsenic have often succeeded. But this does not diminish the value of our medicine, for in some diseases Bark cures where Mercury would not, and I am persuaded that with circumspection the Bark will be effectual in 95 cases of 100 simple Intermittents, which is more than Mercury would be. The means with Mercury and Arsenic we should never employ untill the others have failed. Sometimes after a Salivation has failed, bark exerts a very great additional power, After the removal of fever, or the autumnal bilious fevers by a salivation, periodical Flushings of the face are accompanied with other febrile symptoms, which must be treated with the Bark. Our medicine has sometimes cured Intermittents after the failure of Arsenic.

There are certain combinations of substances with bark which considerably enhances its value as follows.

Bark and Serpentaria form a very

important combination, which is more effectual than Bark alone. Drs Sydenham, Pringle and numbers of other Physicians approved of it as better adapted to Typhus confluent small pox, and where cordials can be used; though it is prejudical in acute Rheumatism, Intermittent Rheumatisms and pleurisies.

Bark and Veberian are peculiarly adapted to cases of and other similar cases.

The union of Camphor and Bark is extremely useful in Typhus, in Jails, and hospitals; in confluent small pox, and similar affections.

Bark and the powder of Mustard in the proportion of gr viii or x of Mustard to ℥ss or ℥ii of the bark is very good in some Intermittents, tending to Typhus, and such as are obstinate. Both of the last combinations I think would be useful in those cases of Tetanus where Bark is admissible.

Bark ℥i to Cayenne pepper gr viii or x is also useful in obstinate Intermittents.

Bark is often combined with Castor, very frequently too, and very properly with opium. When the medicine is apt to run off by stools Laudanum, is combined with it. —

In combination with the Oleum Cajeputi our medicine is given in Pertussis, and in Epileptic affections; Oleum Cajeputi, gtts ii to Bark ℥i. It is likewise combined with Hemlock.

In union with the volatile alkali, or Ammoniac it is used in Typhus & other similar affections, of this I shall say more hereafter.

Bark is also united with some of the metallic preparations, as Iron, Copper, Zinc &c. To increase the tonic powers of Bark I combine it with Rubigo ferri and employ it as a remedy in old and obstinate cases of Dyspepsia. Bark, and blue vitriol are used in some Intermittents as is also Bark and Arsenic.

Bark has been combined with crystals of Tartar by Dr. Smym of Virginia in some Intermittents; probably it will obviate the costive and stimulant effects of bark alone, and I think it will be found useful in periodical Dropsy, whether Ascites, or Anasarca.

I have sometimes employed the Bark in union with carbonate of Magnesia, one half part of the latter to a whole of the former. I have found this very useful in Dyspepsia, when the stomach secreted a large quantity of morbid acid.

Angustura.

Of this it would have been proper to have spoken of before the bark, because it resembles the Cascarilla and the Serpentaria more than the Cinchona.

It is a late aquisition to the Materia Medica, was brought to England from the West Indies and introduced into practice in the year 1788. It is a native of South America growing on the River Oronooke, and derives its name from a narrow passage of land, from whence it is brought. We are not acquainted with the plant which produces the .

The smell of it is peculiar and disagreable, the taste intensely bitter, and somewhat aromatic. The cold infusion is very bitter as is also the hot one, but the latter has less of the ~~bitter~~ taste of the Angustura: The power may be given up to gr XX every three hours to an adult. The infusion is made by adding ℥ss to a point of boiling water. The decoction by boiling ℥ss in ℥viii of water. Of this Mr Brande gave ℥i as a dose.

Our medicine has been used advanta=geously in Sporadic Dysentery, and in habitual Diarhoea in the form of decoction. Also in Intermittents and other Fevers; it has cured Agues of several Months standing in doses of from X to XV or XX grains. It is I believe however inferior here to the Peruvian Bark. Mr Brande however prefers it in the treatment of low nervous fevers, because bark is apt to run off by the bowels, and because the Angustura irritates the stomach less. It was very useful in an Ulcerated Sore Throat in the form of decoction; and in periodical Head ache; Mr. Brande thought it equal to the best Peruvian Bark; It is also proper in that Angina accompanied by a violent eruption.

In a singular instance of Gangrene affecting the throat it has been found useful. Doctor Pearson of London says that it is the most effectual vegetable tonic in many disorders of the stomach, he thinks it would produce the effects of the warm bitters, but with more efficacy: Indeed it has been said to be the best vegetable tonic yet known, but in my opinion it is inferior to the Peruvian Bark. — It has been used in Chlorosis in extract and decoction combined with the Chalybeates; and in Uterine hemorrhages. —

In Pertussis or hooping cough, here however it is only proper at a late period of the disease; when the cough is kept up by weakness, or habit and an irritable state of the parts. —

In the common diseases of Children I think the Angustura Bark, better than the Peruvian, since it is not so apt to run off by stool, and is less disagreable to their palates, as well as to their stomachs. Upon the whole I think that Mr Brande has probably been misled by his partiality for this medicine, and that it is inferior to the Peruvian Bark. It is certain however that the article is well deserving of a serious attention.

Magnolia.

Of this we have six or seven species in this Country: The Magnolia Glauca has been the subject of an inaugural dissertation by Dr. Floyd to which I refer you.

The Magnolia tripetala is known in the West of Virginia, and in Kentucky, It is called also big leaf, and Indian tree, and it is from the Indians that we first obtained. It is a warm aromatic bitter tonic, with a small degree of astringency, and is allied to the Angustura. I should think it proper in the low state of Typhus fever, and I believe it to be not inferior to the Angustura bark; It has a little of the smell of the Mercurial ointment.

Though this article is but little known here it is much used by the Virginian Hunters, and in the Western Countries.

Magnolia Brochia called also swamp Sassafras: The Bark of this species is a warm aroma= =tic bitter tonic. A decoction of it has been used in fever and Ague. Dr. Price has written an (Ingu) Inaugural dissertation on it, to which I refer you for further Information.

The Magnolia accumulata is used in decoction by the Virginian Hunters.

Liriodendron Tulipifera.

American Tulip Tree, improperly denominated a poplar: It is closely allied to the Magnolia in its botanical affinities, and medical properties; see the Inaugural dissertation of Dr. Rogers published in the year 1803.

Cerasus Virginiana. Wild Cherry.

(Prunus Virginiana (Linnaeus).

The Bark of this tree is bitter and adstringent, with some aromatic warmth, decidedly stimulating, and also a little The bark of the root is the most powerful.

It has been advantageously used in Intermittents, here I speak from my own experience, and assert that it is nearly as useful as Peruvian bark in these fevers. It is likewise a very good Anthelmintic, it is used in Dyspepsia and Phthisis Pulmonalis: In Hetic fever from Lumbar Abscess it is peculiarly useful, a striking instance of which Dr. Cutbuth has published.

In Pulmonary Affections in the form of a Tea, and in several low stages of Consumption in this City it has been and is still employed. see Dr. Morris's Inaugural dissertation.

Salix Alba. White Willow.

The Bark of this tree is very adstringent, and has been much used in Tanning. As an Antiseptic it has been supposed equal if not superior to the Peruvian Bark.

The Bark and leaves have been employed in many disorders. In Gout, Rheumatism, and obstructions of the Viscera; but I am not inclined to think it of any great advantage in these affections.

It has been found very useful in Intermittents by Dr. Stone of England, who relates the cases of 50 persons, whom he cured by it alone. Dr. Cullen

says it is a pretty strong and sufficiently agreable bitter, and that he is persuaded it may be useful. Dr. Stone gave it in Intermittents ℞ o ℞ii every three or four hourse, he made use of the bark from small branches, three or four years old. In obstinate quartans he combined it with about of Peruvian Bark. Bergius never found it useful, but it is a curious fact that he disapproved of a great many medicines which were recommended by other Authors. Dr. Haller used it in Ricketts.

Salix Latifolia.

Mr. Samuel Jones has published a work on the broad leaved willow, to which I refer you; he says that the bark of it is better than the Peruvian Bark, but I believe he has been too partial in his account.

Æsculus hippocastanum.

The Bark of this has been used in Intermittents.

Swietenia. Mahogany.

The Bark of this tree was formerly much used in Intermittents; but is much inferior to the Peruvian Bark, and has lately fallen into disrepute; there is a species of mahogany called Swietenia febrifuga, but this has also lost its reputation.

Cornus Florida. Dogwood.

This is an important article and has been the subject of an Inaugural dissertation by Dr. J. M. Walker. Its taste is similar to that of the

Peruvian Bark, but more bitter; the bark is adstringent.

It has been used in Intermittents in Maryland and Virginia in the Autumn of 1804, and is a very good substitute for the Peruvian Bark; of this tree the bark of the preceeding year should be chosen in preference to the recent bark, the latter being more apt to puke. Though this is a valuable article of the Materia Medica yet I do not think it equal to the Peruvian Bark, except upon particular occasions when it is perhaps more effectual; the dose in powder is nearly the same with that of the cinchona, though not quite so large, from ℈i up to ʒss and sometimes to ʒi.

Cornus Cerica.

Called also red Dog wood, red willow, and red Rod; It grows in Marshy situations. Its bark is more powerful as a durable tonic than that of the Cornus florida, but cannot be obtained in such large quantities, the former being but a shrub.

Eupatorium perfoliatum.

This grows in rather low situations, in most parts of the United States, and particularly about this City, the leaves stand opposite to each other, and are perfoliate. It is called also Thoroughwort, most wort, Indian Sage &c.

Of Metallic Tonics.

These constitute some of the most valuable of this class of medicines. The chief of them are the preparations of Iron, Copper, Arsenic, Silver, Zinc &c.

Iron.

I shall not detain you with the Natural history of this metal; It is one of the principal tonics employed in medicine; Dr. Cullen has placed it under the head of adstringents, It is exhibited under various forms, but these may be divided into three classes, namely Iron in substance, Iron reduced to salts by means of acids, and those preparations of ~~acids~~ Iron which are liquid, and in which Iron is dissolved in acids. Thus.

1st. Iron in Substance, as
- a/. Limatura Ferri
- b/. Crocus martis
- c/. Æthiops martial
- d/. Rubigo Ferri

IInd. Iron reduced to Salts by means of acids, as
- a/. Green Vitriol
- b/. Tartarus martialis
- c/. Mars Salubris vel Ferrum Tartarisatum
- d/. Flores Martialis. vel Ens veneris
- e/. Phosphorate of Iron.

III d. The preparations of Iron in a liquid form.

a/. Tinctura Martis
b/. Vinum ferratum
c/. Iron in Chalybeate Waters.

Limatura ferri I.(a) Is the finest part of Iron filings
Crocus martis I(b) Is Iron corroded and reduced to an oxide by fire.
Rubigo ferri I(d) Is iron corroded by the action of Vinegar It is a true Carbonate
Green Vitriol I(a) is a Sulphate of Iron.
Tartarus Martiales II(b This is made by mixing filings of Iron one pound, with Crystalls of Tartar two pounds, into a thick mass, exposing the mixture to the action of the air for eight days in a wide glass vessel; and grinding the matter, after drying it in a Sand bath, to a minute powder, The dose is from gr X up to ʒj.
Mars Salubris now called Ferrum Tartarizatum II. /c/ is much like the former, and is made by mixing equal parts of Iron filings, and Crystalls of Tartar, and exposing them a week to the air
Flores Martialis II/d/ Is made by accurately mixing, and Subliming Colcathar of Vitriol well washed and dried, with an equal quantity ~~weak~~ of Sal Ammoniac. The dose is from gr IV to ʒj and is generally given in a bolus, as it nauseates in a liquid form, but may be exhibited in a Tincture. It is Sudorific and diuretic.
Tinctura Malis III /a/ Is a Tinctura in Spirite Salis, or dulcified spirit of Sea/water/salt. This when properly diluted is given in doses of gts X or XX twice, or thrice a day.

Venium ferratum 111/b/ This is made by maces=
=ating for a Month ℥i of filings of Iron in a pint of wine.
The dose is from ℥i to ℥ß. It is a very valuable me=
=dicine, and every medical man should be acquainted
with it

Iron in Chalybeate water 111/c/ These are useful
in many cases, but too much has been ascribed to them;
They even often do much, especially in this Country. I
once visited some mineral waters in Virginia with
great advantage, and was requested to give a cer=
=tificate of their efficacy, but this I refused to do as
I had drank of them but three times. I offered how=
=ever to certify that the Country I had visited was
healthy, and that the mountains I had crossed had
done me a great deal of good.

In the Materia Medica of Dr.
Cullen you will find an erroneous opinion respecting
the action of Iron in the stomach; he says that it does
not act upon the body without having been corroded
by acids, and he thinks that the filings of Iron &c. produces
its effects only by the assistance of an acid which it
meets in the stomach. I agree with him in thinking
that there is an acid in the Stomach, but nevertheless
Iron is in my opinion effectual without being acted
upon by any acid. It is rapidly soluble in the gastric
juice which is always present in the Stomach, and to
this and not to an acid are we to ascribe its effects.
This was proved in the year 1713 by the famous Valisnery.

Some of the older Physicians thought that Iron possessed very opposite qualities; that it both increased and restrain'd evacuations according to the preparations employed, but this opinion is certainly incorrect, as all the preparations of Iron are more or less stimulant, and Tonic.

The Stacklians did not appeare of Bark in Intermittents, they therefore used Cascarilla, Iron &c. The latter however is certainly Inferior to the Peruvian Bark in Intermittents, its action being slow where it is necessary it should act quickly. In some simple Intermittents however where there are no more Inflammatory Symptoms, it may have made cures. Indeed I have heard that it succeeded in some cases where every other remedy failed. It must be injurious in Plethoric cases (where), it is useful however in Cachexia, and in sanguine and serious Discharges depending on Debility. It is however not an easy matter to distinguish whether or no they arise from debility.

In Fluor Albus from debility and without fever it is extremely useful, also in Retention of the Menses. In Gleets where topical medicines will not cure, Iron if long continued will effect that object: I formerly mentioned that Gleet was often a general Affection. Retention of the Menses often depends upon a weakness of the vessels of the Uterus, and also of the general habit, and in such cases I have often used Iron with advantage; indeed it is then the most effectual remedy. But there are more cases of retention of the Menses which depend upon a different cause, and then our medicine must be improper. In the former cases I combine with the iron a portion of the oil of Savin, I find animal

food as beef, mutton & venison in a rare state, with malt liquors to be very useful.

In many cases of Chlorosis or Febris Alba I think Iron a very excellent remedy. It has been thought that this disease was owing to the systems being too highly oxygenated, cures the disease by absorbing this oxygen: Others have thought that there was a deficiency of oxygen, and that the oxides of Iron supplied this defi=ciency. In my opinion it cures the disease without owing either to oxygenation or deoxygenation.

Iron has been employed in various species of hemorrhages. This is a very antient practice for we find it mentioned by Plyny, the Naturalist, and some others, and it was probably instituted on account of the great adstringency which was supposed to exist in Iron. But I do not think that the preparations of Iron are well adapted to the cure of hemorrhages except in some few cases. The hemorrhagic fluxes often appear from mere and simple debility, and here the preparations of Iron are useful, but even here it has been pernicious in my hands, although it first promised to be very bene=ficial. In hemorrhages serum where there is little or no pain iron is very good. In the Bloody urine of Cattle Dr. Darwin advises gr 60 of Iron with an equal quan=tity of opium in warm ale mixed with flour.

As I think it generally improper in Epistaxis which frequently occurs in very old people, of this more in another place.

For the same reasons that render it improper in Epistaxis it is so also generally in hemorrhages.

In some cases of Phisis Pulmonalis the Rubigo ferri combined with Creta is proper, as when the strength of the system is not increased by low diet, bleeding &c. It is likewise very useful in the long debility so frequently preceding Phisis. Iron is an excellent remedy, and frequently I doubt not has removed this predisposing debility and prevented Consumption. I prefer the Carbonate in combination with creta. I believe in that species of Phisis described by Dr. Murray and which frequently occurred to Sydenham, Iron is likewise very useful.

The Piles or hemorrhoids generally depend on an increased activity of the vessels, for which Iron must be improper, sometimes however the piles are owing to a laxity of the vessels, especially in old people, when our medicine is proper. It sometimes cures active hemorrhages by its purging, which it does when given to the extent of gr X of Rubigo ferri. and gr iv or v of Rheubarb bis terve die,

Iron has much used in Dyspepsia, but it is not adapted to all cases of it. It is improper in Dyspepsia in the Plethoric and sanguine, but is very useful in other habits. In exhibiting it for the cure of this disease, it is generally combined with gentian or Columbo.

In Pyrosis or Water brash the preparations of Iron, and particularly the Rubigo ferri have been used with evident advantage combined

with pretty large doses of Kino.

They have likewise been employed in Dropsy, but this is a nice and difficult practice, and I am well persuaded that even the mildest of them have done harm. Dr. Sydenham however esteemed them highly especially in the commencement of Dropsy. He was in the habit of combining it with garlic.

In Chronic Affections of the Liver and Spleen, unaccompanied by pain and fever, Iron has been very useful, and should not be unattended to. This practice has been so useful, that in cases of long continuance it should be tried. I have cured several cases of Ague Cake by means of Iron.

It has also been employed in Gout, but whenever the bitter tonics are indicated iron will be more advantageous. This practice is also a nice one; I knew several persons subject to irregular gout who never can employ even the mildest preparations of Iron.

Iron is a Anthelmintic, but of this I shall speak more largely when I consider the Class of Anthelmintics.

Several of the preparations of Iron have been employed in the intervals between the paroxysms of Asthma, and it is very highly spoken of by Dr. Bree. In all probability this is a very important practice, for he had a great deal of practice in Asthma, he found it chiefly adapted to those patients with pale and bloated countenances

and injurious in plethoric and sanguine habits.

Iron has been employed both internally and externally in cases of Cancer by some late Surgeons in Britain. Some of them think the Cancer an extraneous body and that this animal is injured by iron. I think that the opinion is a very plausible one, and it would be a difficult matter to prove it incorrect. The Carbonate of Iron has been given by some of them with great advantage, but not untill the patient had taken it for a long time, and in large doses. Dr. Bree likewise recommends Iron in Cutaneous affections.

Of its mode of acting.

Iron is generally thought to act upon the Stomach, and from thence to communicate its effects to the System in general. In some cases however, as in retention of the Menses, I think it enters into the blood vessels. I have never been able to detect the presence of it in the Urine, though some Physicians have said that they have seen it. Mr Sorie a French practitioner says that he saw the Urine coloured by it which was given in extreme division. I think however that there must have been some fallacy in it, for I have tried it several times, and in a great variety of patients, some of whom took it in great quantities, and one in the P. Hospital to the extent of ℥i four times a day, but I could never discover any of it in the urine.

I suspect that Iron passes through the lacteals, and absorbents notwithstanding a number of experiments to the contrary, and particularly those made by Dr. Edward Wright. And though more satisfactory experiments have been made in this University by Dr. Hodge which tend to confirm Dr. Wrights opinion, I cannot give up the Idea that some of the preparations of Iron do enter the lacteals. Vegetables absorb it very readily, and it is impossible to draw a line of distinction between the Animal and Vegetable kingdom, I am aware however that analogical reasonings are frequently deceptive. Iron exists in the blood in the state of a phosphate, but I do not think this any proof of its being absorbed, for I believe it to be found in the body. It exists in the (body of) blood of every animal that has been hitherto examined. The blood may at different times contain different proportions of this metal independently of any use of Iron at the time; but the ~~use~~ (quantity) use of it may increase the quantity by acting as a tonic, for the same effect is produced by well regulated diet, and exercise. I suspect upon the whole that Iron is a compound, and is formed by the powers of the Animal oeconomy out of its compound principles.

Dr. Cullen says "We are persuaded that the good effects of the preparations of Iron have been often misled by being given in too small quantities. The saline preparations in the Stomach are ready in large doses to irritate that organ, for this reason as well as for some others, it is best to begin with small doses, and to increase the dose of them gradually. But when either large doses or long continued ones must be given, the simple rust of Iron is as effectual as any

other preparation, and the stomach bears it better than any other. We begin with the dose of gr v but increase it gradually to what the stomach will easily bear; we have been informed of its being given to the extent of ℥vi in the day, but have hardly found any Stomach that would bear the third part of that quantity without much sickness. I think that the stomach commonly bears it better by being joined with some aromatic."—

I have used it in many diseases, but not generally in large doses, and particularly not in the beginning, but I have continued it for some time. I generally begin with doses of gr v and have not often used more than gr x or xv. Dr. Cullen prefers the Rust, and I have used it more generally. The Stacklians used the simple filings unrusted, and their method is approved of by Mr Moore a British writer, who says that the Calces is much less powerful than the unrusted filings made very fine. I gave the Rust with cinnamon and have gone as far as ℥i in the day, in the Pennsylvania Hospital.

Copper

For The natural history of this Metal I refer you to the Professor of Chemistry. Dr. Cullan places it among the adstringents, but I think it better adapted to a place among the tonics. It is a stimulating Tonic, Dr. Cullen says it is a strong stimulant, and that this often prevents us from perceiving its tonic effect, but I think there can be no doubt of

its being a Tonic in the System, some of the preparations of Copper, like Bark prevent the paroxysms of Intermittents.

Dr. Lewis says that pure copper in its metallic state, or oxided by fire is inert in the body, except in a mechanical way, this has also been asserted by Dr. Duncan; but it is certainly soluble in the gastric juice which is the case with most of the metals. Even gold is affected by it. Baron Storck mentions a Child who swallowed a peice of Copper money, and discharged it in four (hours) days. The figures on the coin were destroyed. Many other facts might if necessary be adduced to prove its solubility in the juices of the stomach. Indeed it appears to be dissolved preety rapidly.

Taken into the stomach Copper produces efforts to vomit, nausea, pain in the Epigastric region, and cartilage ensiformes, colicy pains, and purging sometimes of blood, or though more rarely, constipation, head ache, vertigo, delerium, and delerium animi, rendering the pulse small and weak, the countenance pale, and causing fainting, convulsions, paralysis in form of and apoplexy. It also frequently causes an exanthematous eruption which has often been mistaken for Lepra. Such are the pernicious effects of Copper upon the system, but we are not to suppose that all these effects are produced in any one instance, nor can I say which are the most common, except that nausea, vomiting, and affections of the head are very frequently produced.

Though Copper is so deleterous yet people who are employed in Manufactories, or in Mines of this Metal, enjoy very good health. This however may be perhaps in part ascribed to their washing themselves very carefully before eating. They generally

wash their whole body once a week, and if they neglect this the consequences are pernicious, and they are affected with eruptions of a greenish colour.

Copper exerts its poisonous effects upon other animals also besides man. Young Dogs licking Copper vessels are effected with violent purging, and sometimes with death. Birds however are not thus effected; they eat and drink out of Copper vessels without incon= =venience. Here then they have an advantage over quadrupeds, and man. But on the other hand they are often destroyed by eating sugar.

Copper is never used in a metallic state, though it perhaps might be for the purpose of exciting a Salivation. here it probably acts mechanically through the medium of the Stomach. A Child once swallowed a Cent in this City; and as long as it was retained it kept up a discharge of Salva, the quantity of which was about four pounds in twenty four hours. It also had a swelled tongue, sore throat, sore mouth &c.

Preparations of Copper.

Aurugo Aris Acetate of Copper or Verdigris is made by Stratifying plates of Copper with the husks and Stalks of the grape, which have been made to ferment after the wine is pressed out. In the space of from ten to twenty days the plates of Copper are taken out and their surfaces are covered with verdigrise which may be easily separated with the Knife. It is then well beat with wooden mallets, dried in the sun, and packed up in bags. This preparation is called an astringent, and is generally employed externally.

It has been used internally in cases of Malignant Ulcers, I have not used it, but those who have, praise it. It is one ingredient for a pill, which is used in Cancers. It is also injected in Gleets thus,

℞. Prepared Verdigris ... grs viii
Olive Oil ℥iv. m. f. Injection

This has been recommended, but I have not found it a good formula, for we must use much weaker injections in this Country. The Author of the above formula recommends and prefers the following, but to me, it has the same objections as the first

℞. Verdigris prepared ..... ʒi
Spirits Sal Ammoniac ℥iv
Water ℥viii. m. f. Injection.

The use of Copper as a medicine is of a very antient date, we can even carry it as far back as the time of Hippocrates. The great and good Mr. Boyle recommended Ens Veneris which he employed as a laxative. Cuprum Ammoniacum has been used by the German Physicians, and that successfully.

Vitriolum coeruleum

Of which, I shall take more notice under the head of Emetics, is generally considered as a sulphate of Copper, but it is a Super Sulphate. In turns blue, Vegetable coloured red. The Crystalls are of a deep blue colour, and a strong styptic taste.

Blue vitriol has been advised in Agues and Intermittents in small doses of ¼ of a grain to one grain, three or four times in the twenty four hours by Dr. James Adair. Where bark has failed he used this formula with success in Intermittents.

℞. Cupr. Caerul gr vj
Canell. Alb. ℥i. m. f. in 80 pills
with syrup, and one three of four times a day.

Donald Munro has also used the blue vitriol in two obstinate cases of Intermittents with succefs in St. Georges Hospital. his formula was:

℞. Vit Caerul gr iv
Ext. Bark frew. grs XXXii. m. f.
in sixteen pills with syrup: He continued it for a fortnight, and used one pill four times a day, by these means he cured three cases, and he found it most useful when it produced a slight nausea. I have used the blue vitriol with powder of ginger, or bark, It sometimes failed, although it generally did good, and it sometimes succeeded after both bark and arsenic had failed. I am of opinion with Dr. Munro, that it generally proves more effec= =tual when it exerts a slight nausea, and this it does in doses of ½ grain, or frequently less. I generally used it in doses of ¼ grain.

It has likewise been used in Gleet and Gonorrhœa. I formerly employed it here, but do not now. Dr. Shippen, used it in the following form, but I have often seen it pro= =duce inconvenience in his hands:

℞. Cupr. caerul gr iv.
Aqua ℥viii. m. f. Injection,
and use three, or four times a day.

Cuprum Ammoniacum is made by rub= =bing together untill the effervescence has subsided.

Purest Blue Vitriol ℥ii
Sal. Ammoniac ℥iii wrap the solid mass which is then formed in a spongy paper, and dry it on a Chalk stone.

This has been used in various diseases and particularly in Epilepsy and other similar convul= =sive affections. It is used in small doses; In an adult we begin with a ¼ of a grain twice a day, but this must be increased, and may be carried to gr 1 four, five, or six times a day, that is in the twenty four hours. It has done much good after other things have failed. I have seen it completely succeed in one case of Epilepsy; that of Mr. Stewarts a Member of the house of Representatives. Dr. Cullen thinks very favourably of it. "I find it" says he "commonly more manageable than the blue vitriol, and in many cases have carried the dose to five grains, and in some still farther" Dr. Cullen had a great de= =pendence on it in the cure of Epilepsy, and says what we ought not to forget, that he has cured many cases with it; but he did not like to give it for a long time, for fear of accumulating in the system, and doing harm there. Dr. Duncan used it in many instances and found it sometimes to do good, and at others not; he however recommended a tryal of it in Epilepsy. Dr. Wm. Bally of Genoa has published some cases in which it was used, and he says that it seldom failed of curing, never if the disease was idiopathetic, or the patient somewhat exhausted. In one case the patient took ℥ii and it did no harm. Some Physicians are afraid to continue the employment of it for any length of time, fearing an

accumulation of it in the system. There is however nothing of this kind to fear, as there are many instances of a long continued use of it, without bad effects. Dr. Russel mentions one case in which it was given for some time in the dose of gr XX ter die, and it affected a cure.

It is a stimulant Tonic and therefore it is proper to begin with small doses; sometimes we may begin with ½ grain, but generally ¼ grain is sufficient. It should not be given upon an empty stomach, and should be combined with a portion of ginger to prevent sickness at the stomach.

The late Dr. Gardner informed Dr. Hope that he had often used it in Dropsy with very good effects, I have not employed it but Dr. Boerhaave has very successfully; he used the filings thus.

℞. Filings of Copper ℥i
Spirts. Sal. Ammoniac ℥viii. m. and give gtts iii three times a day for some time, and gradually increase the dose. Copper is an excellent Anthelmintic, acting here probably as a poison to the worms and probably as a Tonic.

The Cuprum antimoniacum is said to induce sometimes a salivation, but this is by no means a common effect. I was not observed by Dr. Batty, or Russell. Copper was formerly employed as an escharotic but since the introduction of Mercury it has been too much neglected. It seems to act pretty much in the same manner as Mercury.

In Scrophulous Ulcers. I have often employed Verdigris externally in the form of an ointment, generally prepared with Basilican, and I cured one patient by it. I have used the same ointment with great advantage in Old Venereal Ulcers, also in Chancres, where there was no disposition to heal, the Verdigris that has been used either in ointment, powder, or solution. From gr ii to XX of verdigris may be used in a solution in ℥ viii of water.

Verdigris made up into an ointment with hogs lard has been employed in Faenia Capitis by Berguis. I have not used it myself, but I think it would be beneficial, because this disease frequently calls for stimulating applications.

In complaints of the eyes, verdigris has also been of service. Cullen says "he has known a weak solution of it useful in restraining inflammation; but it is so ready to irritate the eye, that a great deal of nicety is necessary in the employment of it, and we seem to have a milder preparation in the aqua Sapphanina. I think that the Aqua Sapphanina is more adstringent, and I doubt its utility in removing specks from the Cornea, though it may have done this by stimulating the absorbents to take up the opaque part, and thus answering the purpose.

Silver.

The most common preparations of Silver in practice is the Argentum Nitratum or Luna Caustic.

This is made by dissolving Silver in the Nitric acid, melting the Crystalls, and casting them in moulds.

This has been long employed as an escharotic in order to eat down sores from an escher, I have been accustomed to use it in a fluid form with a Camels hair brush. After the pain becomes severe I wash away the Caustic with clean water taken up on another, or the same brush; this always removes the pain instantly, and it may be (~~wrapped~~) reapplied and repeated seven or eight times. This method enables us to circumscribe the effects of the Caustic within any limits much better than in any other way.

The Nitrate of Silver is thought to be a very useful Antiseptic; according to Dr. Black a solution of it in 1200 times its weight in water will entirely prevent the putrefaction of an animal body for ever. It would therefore be a much better method of preserving dead bodies, than the spices which are at present used for that purpose.

Formerly the Pilula Lunans, or Purging pill, was made by dissolving Silver in ditated Nitric acid, and evaporating it to crystallisation. This was dissolved in distilled water and mixed with an equal quantity of Nitre in water, and the mixture evaporated to dryness. gr ii of the residuum was made into pills with about six grains of Sugar and 10 grains of crumbs of bread. This was recommended by Baum and by Mr. Boyle as a purge.

Mr. Everard Home of London speaks highly

of the application of the argentum nitratum to Indolent Ulcers, as acting at the same time both as a stimulant, and as a tonic to the granulations: Those to which it is proper are of three kinds. 1st In Leprous affections, occuring frequently among impressed Seamen. 2nd In those from some time Bubbes after the venereal poison has continued for some time, In which I have used the preparations of Bark and Hemlock internally, and the preparations of Copper externally; and 3rd The Ringworm which is common in warm climates. This may be dispersed by the oxy-muriate of Mercury especially if it be used weak and continued for some time; or the Ungentum citrinum, but the Argentum Nitratum cures it entirely.

The Nitrate of Silver has been used in Epilepsy lately, first by Dr. James Sims of London, who has related several cases of it; he perhaps might not have been the first, but about twenty two years ago he called the attention of the British practitioners to it as a remedy in this disease. Dr. John Wilson used it advantageously, giving it in the dose of gr ii ℞ two or three times a day, that is after being continued for some time in smaller doses, and gradually increasing. Dr. Sims says that it sometimes agravates the disease at first, though it is afterwards effectual.

Dr. Clapp of England, (York) has not observed this effect of its increasing the fits at first, and he says that it sometimes purged.

He gave ½ grain three times a day. One of the Physicians at Vienna determined to give it a fair trial; he gave it in doses of 8 or 9 grains, to eight or nine patients, and after using it for four weeks ineffectually,

he found at length that it diminished the paroxysms. A Physician of our (Country) hospital gave it in a close of gr IX for some time with great advantage. It has not been much employed in the practice of the United States, and often fails of effecting a cure. It has been given in England to the extent of gr XII in the day. I used it in two cases of long continuance with little, or no good; In both of these cases the powers of the mind were much affected.

It appears that it may be given to a considerable extent. I have given it to the extent of gr XII without effect. Epilepsy is a dreadful disease, and every man that is acquainted with it must know that it requires very different treatment. The Argentum Nitratum is certainly desirous of attention. In the febrile and plethoric Epilepsy bleeding and low diet do much good, but even here Tonics are often beneficial. In Epilepsy depending on debility they certainly do much good, and I should as soon think of refraining from the use of them in Tertians as I would in this kind of Epilepsy. I have used the Cuprum Ammoniacum in this disease too, but when the memory and mind are affected Tonic remedies, should be avoided. Indeed when the powers of the mind are much impaired, there is but little hopes of recovery. Cæsar and Mahomet were not injured in their minds. *

* NB: a man must be injured in his mind to suppose they were. (see Crawford on nonesense).

The Nitrate of Silver has been used in the dreadful disease of Angina Pectoris, and one case of it was completely cured by this medicine. It was probably taken up in the lacteals if we believe a case related by Dr.

The powers of this medicine are propagated in a remarkable manner; It induces a Salivation, and has been known to excite it in one case by being applied to an issue in the arm. It also often purges. I believe that it is a tonic, but I do not assert that its good effects are all owing to its tonic powers. The Nitrate of Silver is now said by Dr. Black to be one of the most powerful Antiseptics known.

Zinc.

Flores Zinci. When Zinc is raised to a red heat in an open crucible it inflames and emits white flakes, which are called Flowers of Zinc, and by the antients Philosophical wool. It is merely an oxide of Zinc.

This has been given by Gobius internally in Epilepsy to the extent of one, or two grains a day, he says that he cured two cases of this disease by it: And a Woman was cured of Convulsions by five grains a day. Mr. Bell cured a Man who had been for sixteen years subject to convulsions, with this medicine. Dr. Khun cured one case of Epilepsy by it. It has been used in the Pennsylvania Hospital. Donald Munro says he has seen it given in doses of gr XX without any advantage. I have never employed it. It has been successfully

employed in Hysteria. A German writer has asserted that when it is combined with Cuprum Ammoniacum patients will bear the combination better than any of the medicines in a seperate state. He mentions a Lady who took 2.½ grains of the Zinc, and 2 of the cuprum, when she could not in a seperate state take a larger dose of either.

White Vitriol.

Of this there are two kinds. the sulphate and the Super Sulphate of Zinc, the latter is the kind we use though it is generally thought to be a sulphate. It is more soluble in boiling than in cold water, effloresces in the air, and at a high temperature parts with a portion of its acid.

The white vitriol has been used as a tonic in various affections. It is one of the component principles of the Quafsia draugh. I use it as a tonic sometimes alone in the shape of a pill, but more frequently in combination with the powder of gentian or Columbo, in the proportion of white vitriol gr ii to gr vi or gr viii of the latter, and that given two or three times a day.

It has been used in Epilepsy at the Pennsylvania hospital with much advantage. I employed it with very good effects in a case of Epilepsy combined with Chorea.

It has likewise been employed in

Pertussis or hooping cough. It here proves beneficial by its emetic quality, but not by this alone. Dr. Saunders of London used to give it in small doses to children, and he thought it the best remedy which was known in that disease, and that it might be given with safety both to children and to adults. My practice is to give to a patient labouring under Pertussis, two or three times a day a solution of the super Sulphate of Zinc upon an empty Stomach, with a view to nauseate or vomit. during the intermissions of giving the vitriol, I exhibit the common brown or pectoral mixture. The dose is commonly one scruple of the white vitriol in ℥iv of water, and of this two or three table spoons full are to be given two or three times a day, or 24 hours; this is the dose for a child about five years old. But we need be very nice as to the quantity. If it neither purges or pukes the quantity must be increased. Children will take this medicine very readily. If the lungs of the child are affected, and oppressed with an unusual load of mucus, I give a solution of the medicine in water so as to puke it.

It has been used in Gonorrhoea and Gleets; more so indeed than almost any other medicine in this County. It is most commonly combin'd with Saccharum Saturni. This compound is used even in recent cases, and is very safe if not too strong.

℞. Vit. Albæ gr v or at most viii
Sacc. Saturni gr iii or at most v.
Aqua Flav. ℥viii vel x. M. f. Injection
This injection is to be used to the extent

of one syringe full four or not more than eight times in the twenty four hours.

It is also used in Chronic Affections of the Eyes or of the Tarsus as a wash thus.

℞. Vit. Alb. gr X

Aq. Fluv. ℥viii. m. an infusion of Rose water however or some other vegetable astringent is preferable.

Acetate of Zinc. This has only been used lately, but it was mentioned long ago by the celebrated Glauber. Dissolved in Rose water it forms an excellent eye water, and it may be employed whenever the calx is useful. It is an emetic from doses from gr v to X and operates speedily. Mr Henry has used it in an injection in Gonorhœa to the extent of gr viii or X to ℥iv or vi of water. He says it is much more preferable to the injection with white vitriol, being less liable to produce pain. Doctor Farrier of England thinks it a better injection than any other. I have not used it alone. The method of preparing the acetate of Zinc, is by adding to a solution of white vitriol in ℥vi or ℥viii of water, a solution of the Saccharum Saturni in twice its weight of water, then filtre the fluid and crystallize.

Bismuth.

I have had no experience of the Utility of this article, but in Geneva the Magestry of Bismuth has been used in Spasmodic affections of the Stomach in the dose of four grains, four times a day. Dr. Smith was informed that it had frequently produced good effects, and never any injurious ones.

Arsenic.

This is one of the semi metals and was formerly supposed to be coagulated aqua fatis. It is often found native. When dissipated upon hot coals it emits ~~hot~~ white fumes, with an odour of garlic, and the oxide in addition to this gives out the same garlicy smell. The Scheele has proved that this metal is capable of forming a peculiar ~~metal~~ acid. Pure arsenic, or the Regulus of Arsenic is of a blackish grey colour, ponderous and volatile. In its metallic state it has but little effect upon the system, but the oxide is a virulent poison to all animals, differing I think in this respect from all other poisons. The oxide is what is employed in practice. The following is

Fowler's Solution.

℞. White oxide of Arsenic gr LXiv
Potash — gr LXiv
Water fts i. Boil to a half pint, then add another half pint of water and ℥fs of Lavender compound. The dose of this for a patient eighteen years and upwards is gtts XII. —

Dr. Darwin thinks that a saturated solution of the white Arsenic in water would be better: he puts more arsenic in the water than it can dissolve, boils for half an hour, lets it stand to subside, and filtres through paper; The general dose of this at first is gtts v bis die.

I give the oxide in substance in Intermittents made into pills with a little opium and sugar. In each pill there is $\frac{1}{16}$ or $\frac{1}{12}$ of a grain of Arsenic and $\frac{1}{4}$ of a grain of opium. It is best to begin with the sixteenth of a grain, but I have frequently given the twelfth to an adult. I generally give about three or four pills during the twenty four hours in an Intermittent. This form is better in my opinion than Fowlers solution. It is cheaper, safer, and more efficacious. I add opium from its utility in combination with the sugar of lead, besides it frequently purges when used alone, which effects are prevented by the opium, and it is less liable to nauseate when combined with opium.

I have often cured very durable Intermittents with sixteen or twenty of these pills, but we must sometimes go farther, and it requires at times three grains to effect a cure.

Arsenic however often fails of curing Intermittents, and Agues. I have often seen it fail, and particularly where the Intermittents tend to Typhus. I was disappointed in its effects in those of the Autumn of 1804 in this City; during the last Summer and Autumn it also often failed, and many of these yielded to the Blue vitriol. Writers are not generally sufficiently precise with respect to the time at which the Arsenic should be given. I exhibit it pretty much in the same manner with the Peruvian Bark, never during the hot or cold fits, nor even at a short time before the expected paroxysm,

but during the time of It is not however so prejudicial during the hot fit as the Bath is. Many respectable Physicians of this City are less nice in this respect than I am and they are equally attached to it.

Arsenic produces its good effects in a short time. If this and the Saccharum Saturni do not operate in a few days I omit them entirely, or at least for some time. If it does not produce some obvious amendment in an Intermittent after gr ii have been exhibited I generally desist with it. In my practice the Intermittent has yielded to less than XXXii pills. Dr. Fowler says that ten gts of his solution two or three times a day cured an Intermittent of five Months standing in 8 days, an effect probably which Bark in its usual (way) doses could not have produced in a time of five times that duration. There are many Intermittents which yield not to Bark, or Arsenic separately, but do so to the two in combination, but I know not what (combination) peculiar circumstances render this combination necessary.

Although I have placed Arsenic among the Tonics, I certainly do not believe that it cures Intermittents by virtue of its Tonic powers; Bark, the bitters and adstringents increase the tone of the Stomach, but Arsenic keeps it in a mild nausea. The patient after the cure is generally weak, and several parts of the body are swelled: The cellular substance containing an unusually large quantity of water. It produces debility or a new disease of weakness. A Sailor at the Pennsylvania Hospital who was cured of an Intermittent of long standing

by the use of Arsenic, was so debilitated as to be unable to stand, but this debility is of a very short continuance. The Ædematous swelling effects the whole body, but more particularly the face, hands, and feet; it is accompanied with a kind of aspect or bluish pallid colour of the skin. I call it the . This effect has been noticed by other Authors, who suppose as I do, that it is not dangerous. Thus it appears our medicine operates in a peculiar manner, diminishing the contractility of the tela cellulosa. This is general, but not an universal effect, for some of the Physicians of this City have used the arsenic, and never perceived it. When the Intermittent resists the action of the medicine the ædema is not produced, or I have not seen it.

There is a kind of Intermittent head Ache which is said to be cured by Arsenic: In one case however, the only one in which I gave it, it entirely failed, and indeed aggravated it. Dr. Fowler used his solution in this disease.

Dr. Darwin thinks that Arsenic produces its effects by stimulating the stomach to a stronger action. That preventing a torpor of the sanguiferous system: by a connection of the stomach with the vascular system. I do not however agree with him, it often produces a nausea and does not increase the strength of the stomach. It has however sometimes increased the appetite, but this is not common effect of it. I think that it does not at all prevent a torpor of the sanguiferous system. The ædema is apparently produced by a want of action in the system.

The Arsenic has been used by Dr. Joseph de Prenzis a hungarian Physician. Its effects in his hands were various. We know not his doses but he probably used larger ones than commonly employed. He thought that the substances Myrrh, black pepper, and various others were useful in preventing its bad effects. I think that Arsenic sometimes prepares the System for the Bark by reducing that excess of action which renders the Bark improper. It commonly fails where the Fever is accompanied by debility.

Arsenic upon the whole appears to be both a safe and effectual remedy. It often cures cases as well as bark, often those to which Bark is well suited, and often those in which that medicine is improper. It seems also to prepare the System for the Bark resembling in this respect Mercury. It is not however proper in those Intermittents resembling Typhus. It is more safe with opium, and should be very carefully prescribed at the same time that the patient should be seen frequently. It is improper in Intermittents of long standing, or where there is a deficiency of action; but should be used where there is an excess of action.

It has been observed by Mr. McKeir that the use of arsenic predisposes to consumption, ~~that~~ but there is much fallacy in this observation, the medicine has been much more extensively employed in ~~this medicine~~ United States than in France. I have employed it in the cases of many persons who were evidently predisposed to Phisis without observing any injurious effects.

I know not whether others have used Arsenic in Hetic Fevers but I have employed it in one case. The patient appeared to be from her shape predisposed to consumption. She had an Intermittent which was combined with an incipient hectic, and was unable to take Bark, the smallest dose of which always induced a distressing tightness across her breast. She was cured by the use of Arsenic pills. By exposure however to a damp house she contracted a very evident hectic which was removed by the use of Arsenic; but she relapsed in about eight or nine months afterwards and ultimately died of consumption. Last Summer I was consulted by a Lady with a very troublesome Cough &c. with other symptoms of incipient Phthisis. I used Fowlers solution and removed all the symptoms, and the debility was not much increased.

From the great Affinity of Rheumatism to Intermittents, This is a very good place for speaking of the use of Arsenic in this refractory disease. I cannot say any thing respecting this practice from my own experience, but Dr. Parke read a paper before the college of Physicians in which he asserted that he had employed it in the Pennsylvania Hospital with great advantage. The cases in which he used it were of the Chronic Kind, where blood letting would sometimes have been proper. I should think that it would be proper in acute Rheumatism too.

It has been employed in some Hemorrhages. I have never seen it tried, but think it

might be useful especially in hemorrhages of the active kind.

In obstructions of the Spleen, and Liver, or Chronic Indurations of them it has been used with decided advantage. It has been used in Chronic Hepatitis. In these cases I think the operation of the medicine resembles very much that of Mercury; neither of them act as Tonics.

Dr. Darwin relates a case of an Intermittent Palpitation of the Heart which attacked a man of 69 years of age, which was cured by the use of four drops of his saturated Solution every four hours from a ℥ ii phial.

The Arsenic has been used with very good effects in Angina Pectoris by Mr. Alexander of Halifax, on this account I think it might be useful in genuine Asthma.

In Epilepsy I think it promises well: It has been used by Dr. Fisher of Massachusets as an Anthelmintic, and with great effect. It was recommended here early in the last Century by professor Gebier of Montpellier in France.

The employment of Arsenic in Cancer I have had but little experience. Several years ago a Mr. Le Febre recommended a solution of Arsenic in milk to be taken internally, and he says that he produced good effects by it. It is one ingredient of the different Cancer powders which have been so much employed. One of these is Plunkets powders, which was ~~supposed~~ often serviceable.

This powder was supposed to do much good, but it indubitably did much harm. It was frequently found beneficial if not in Cancer at least in Ulcers which assume a cancerous tendency. The following is the preparation of the powder which I shall give in the quacks own words.

Plunkets powder.

℞. Well prepared.
- Crows foot or arbance one handfull.
- Dogs Fennel, three sprigs
- Crude Brimstone
- Oxide of Arsenic ãã three thimbles full.

Incorporate them well in a mortar: mix them well with the Yolk of an egg, and apply the mixture to the sore, spread upon leather. I think that this compound acted very much by the intervention of the Crows foot.

Arsenic was also an ingredient of Martins powder. A Lady who used this powder for a Cancer was affected with apoplexy which was supposed to be owing to the Arsenic it contained, though it was only externally applied, and this is one symptom of the external use of the medicine. I think that Martins powder often did good, but equally often did mischief; I believe that Sixteen twentieths of his powder was of a vegetable nature, and this was probably the Cancer root, or Peach drop of Virginia. I was witness to a cure made by Martins powder in the Pennsylvania Hospital; the case was a very obstinate one, the patient having nearly lost her nose, and the disease rapidly spreading. Martin also gave a pill internally which has never been analysed, but I think contained Arsenic. Mr Simmonds of England used Fowlers solution internally to

the extent of gtts XII three times a day, and with effect, he says it diminishes the pain, and promotes the healing of cancerated Ulcers. In cancerous Sores I think it would be proper to omit combining the Opium with the Arsenic, because it would only increase the pain; I have seen a cancerous affection of the Rectum in which the smallest doses of Opium increased all the symptoms, and the same observation has been made by others. The Carrot poultice is very frequently used in Cancerous Ulcers, it is an article considerably allied to the hemlock, and the root of it not boiled is considerably narcostic.

Arsenic has been topically applied in Cancerous affections of the womb. This substance is not however universally approved of in Cancers. Bleeding does good in some cases: Dr. Munro the elder thought much of it both topical & in general Cancerous.

Arsenic has been employed in many Affections of the skin with great advantage, but in many cases it would be extremely hazardous, since it sometimes produces apoplexy, or death in other ways, even when externally applied. Its external application to open surfaces are particularly dangerous. It is therefore a very dangerous remedy. Some Constitutions however are very little affected by inconvenient symptoms from it, though it be taken in pretty large doses, and though it, finally effects a cure: I have seen one grain taken at a time, and another not long after, without the least inconvenience, and even three grains have been given in one day in this City, by Dr. Cathrall in an Intermittent.

Arsenicum Tartarisatum.

This is a preparation of Arsenic thus made by Mr Sturvin.

℞. White Arsenic
Crystalls of Cream of Tartar āā ℥ ii
Pure water ℔ i. Boil for half an hour and strain through paper, then having evaporated it, set to crystalize.

Mr Sturvin has taken some pains to shew that the above is valuable, but his experiments are very unsatisfactory. He applied it externally, and says it produced a diuretic and nauseating effect; he used gr ii of it. I think however he must have mistaken as he used it very timidly.

For an account of the symptoms which arsenic produces, when it occasions death I refer you to Dr Black, I shall relate the appearances of a boy upon being opened, who had been poisoned with Arsenic externally applied for an Itch.

The lungs were inflamed and turgid with blood: The breast and vessels were also turgid, and the Intestines inflated and a little inflamed. The vessels of the Brain were distended with blood, and upon cutting into the substance ~~into the substance~~ of that organ, a considerable effusion took place.

Sir Theodore Pye says that the garlicy smell is not indubitable proof of the presence of arsenic; and I would not trust to this smell, as his opinion

is said to have been founded upon actual experiments which were perfectly satisfactory.

Tin.

The preparations of this metal were once much esteemed and employed in various disorders; they are now however much neglected, and justly so. But the powder of tin is yet retained.

Dr. Lewis has asserted that common Tin contains a portion of Arsenic. This however has been contradicted by Professor Orton of Edinburgh. Dr. Black says that he once observed colic pains from the use of this powder.

Pulvis Stanni or Powder of Tin is made by melting tin in an iron mortar, stirring it briskly and incessantly untill it be congealed, is the principal preparation used at present.

The use of Tin for culinary purposes was formerly supposed dangerous, but it is now considered as perfectly safe. The quantity of arsenic it contains is too small to do any injury, and the evils which has been ascribed to tin have probably been owing to other metals. Tin is soluble in the gastric juice.

The powder has been used as an (Almentic) Anthelmintic. The common dose is from ℈i to ʒi by Dr. Orton of Edinburgh.

It has likewise been recommended As an Antispasmodic, an in Epilepsy, but it does no good except where the disease arises from worms.

Dr. Cullen has omitted to mention Tin in his Materia Medica, he has done the same

with arsenic, and many other articles. In my opinion Tin is but a feeble tonic; but it is generally considered as a very powerful Anthelmintic. I know not in what manner it acts unless it be Mechanical.

Sulphuric acid.

This is a useful ~~acid~~ tonic, and is much used as such in form of Elixir of Vitriol. It is proper in those cases of Debility where the Peruvian Bark, and the different vegetable bitters may be used, and is often combined with the Bark in infusion or decoction.

It is said to be beneficial in Epilepsy but I have not employed it. It has also been employed in other spasmodic diseases. Professor Duncan relates a very alarming case which was cured by the vitriolic acid in combination with mint water.

The Elixir of Vitriol has been used in Fluor Albus, and very much praised. I have administered it, but in combination with other substances.

It has been much used in Hemorrhages of red blood; Dr. Sydenham cured one case in a short time with it. It has generally been used with advantage here either by itself or with Peruvian Bark or Opium, this last combination has been particularly useful in Utterine hemorrhages.

Internally employed and continued for some time it was formerly useful in Itch in the Edinburgh Infirmary when I was a pupil there. The application of Sulphuric acid ℥i and hogslard ℥i is useful in Tænia Capitis.

Muriatic acid.

This deserves to be mention here, It has been given in Dyspepsia to the extent of gtts viii or X two or three times a day, in a wine glass of cold water. I think it superior to the Sulphuric acid as a tonic. In Baltimore the Muriatic acid has been used in Jaundice with good effects. Dr. Whithering has found it useful as a gargle in Angina maligna, or Ulcerous sore Throat.

Muriate of Soda.

Common Salt. This is a common article of diet and therefore not employed as a medicine though it is a most powerful tonic. The general demand for salt in diet I think natural, though Mankind may live without it. It is not true however, that the American Indians did not use it before the discovery of the New World. The Mexicans made and sold it in their Markets; It was manufactured by all the natives on the Atlantic coast, and even by the Natives of the interior parts of this Country, from the Salt Springs which were distributed through it.

The tonic effect of Salt in diet is evident in warm weather, and from its recovering the tone of the stomach after some diseases. After violent vomitings to which I am sometimes subject, my Stomach continues extremely debilitated and requires the use of Salted articles which almost immediately restore it tone. In fevers the patient often calls for salt, and every physicians must have observed its invigorating effects

on the Stomach. It has been used in the low state of Typhus, and in Camp Fevers with advantage.

It has likewise been employed in Hæmoptysis, but in this case it probably does not act as a tonic, for nitre without being a tonic produces the same effects. Although I deny not but this article might be so employed as to produce a tonic effect.

The long continued use of Salt has produced Scurvy. It has also been said to lay the foundation of Calculus, but though this opinion was entertained by professor Duncan of Edinburgh I think it incorrect. both Muriatic acid and Soda are used in Calculus.

Salt has been said to injure the teeth, and as a proof of this, it would seem that the people of Iceland who eat no Salt have beautiful white teeth; but this I believe arises from other circumstances, one of which is the uniform temperature of their climate; for the people of Lapland have also remarkable fine teeth, and yet they use Salt in very great quantities. The excessive use of Salt however may affect the teeth by injuring the gums, but I do not think it will hurt them any other way.

Salt is a necessary article of diet to many of the Brutes particularly to the herbivorous, but this is not the case of all the carnine, for it is said that to many of them it is poisonous. I believe that a Saline Atmosphere is extremely prejudicial to patients with Pulmonary Consumption, and this I think is uniformly admitted by the British Practitioners. Probably this is one reason why Phisis Pulmonalis is more common in the Eastern than the

Southern States, particularly on the Sea Coast of the former.

Lime.

This is partially soluble in water. When internally employed it is a tonic, for which reason it has been used in Dyspepsia; here perhaps it absorbs a morbid acid in the Stomach, but independent of this, it is also a tonic. I have known it employed in many Dyspeptic cases without morbid acid. It frequently has stopped Athritic vomitings, and for this purpose I think it an excellent article, better perhaps than any other. It may be taken to the extent of a wine glass full four or five times a day, with as much sweetned water, or milk.

It has been said to stop the black vomit in Yellow Fever, but when this has commenced, the patient unless a Child, does not often recover. It certainly however, has checked it, and succeeded where other medicines have failed. I have known the Cream of Lime to stop this vomiting in one case: In the Year 1788 I visited a Woman with black vomiting in Yellow Fever, there were two other cases in the house. I recommended lime water with milk, but by mistake the Cream of lime was given in milk in as large doses as I had ordered the lime water. No inconvenience occured and the vomiting was stopped, which Is the first case of the kind I ever knew in an adult. In some cases of Chronic Diarrhœa Lime water with milk has been found an important remedy.

Lime water with a solution of gum Arabic is useful in cases of Gonorrhœa and Gleet.

I do not recommend it recent cases but chronic ones. I shall speak of the Lithontriptic powers of lime water in its due place, as also of its Anthelmintic powers.

Lime water has been used in Old Ulcers, and in cases of Burns, combined with sweet oil. The preparations made for this purpose is by agitating Lime in a plate with Olive oil.

Muriate of Lime.

This I take to be a better tonic than pure lime. It has been long known to the Chemists and in the old chemical books it is called fixed Amonia. It has been praised in Scrophula in Curved spine and Hectic fever, and has been used to the extent of ℥i two or three times in the twenty four hours, but it is best to begin with gtts viii or x two or three times in the twenty four hours. It may be taken in cold water sweetned or any other fluid. I cured with it one case of open Scrophula in the neck of a young woman, and the disease never returned. I have found it most useful in open Scrophulous ulcers, But Dr. Griffiths has used it with very beneficial effects in occult swellings in the neck. It may be made by dissolving lime in the Muriatic acid; and that commonly employed is the residum after separating Ammonia from its muriatic acid by means of lime. I have cured one case of Bronchocele by it. If the patient be ten, or fifteen years of age begin with 4 or 5 drops, three or four times a day,

and gradually increase as far as the Stomach will bear it.

Muriate of Barytes.

The Carbonate of Barytes is poisonous, so also is the Muriate. It has been used in Hectic Fevers in doses of from X to XX drops. Also in Scrophula and in Cancer with success.

In Cutaneous affections, and in Old Ulcers of the legs.

In a kind of Scrophula which is peculiar to the Negroes of the West Indies, it has been used with much advantage. The dose is gtts v. Doctor Crawford assures us that he has cured Scrophula in its last stage, and that it has also been useful in Cancer. Dr. Clark who exhibited it in the West Indies, says that the disease resisted Mercury, Peruvian Bark &c, but yielded to the Muriate of Barytes. It has also been much employed in the Royal family of England who are very subject to Scrophula.

Mr. Pearson of London has successfully employed it in stopping the progress of obstinate Venereal Ulcers, and that gentleman also admits its use in Scrophula. Refer to the Professor of Chemistry for the best method of preparing this medicine.

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