BARTON

Institutes of Medicine – Doct. B. S. Barton –

Commencing Nov. 1813.

& Corrected during the Lectures of 1814–15

Barton

Notes on the Institutes of Medicine

705

under Doct. Barton. —

Nov. 4th. 1813 — & corrected during the lectures of the winter of 1814-15.

Vol. 1st.

Nov. 10th 1814. —

Physiology is the natural history of the human body. in its perfectly sound state. —

Pathology is that science which ~~teaches~~ treats of the morbid state of the system. — this comprehends the causes, remote, proximate &c — tho' some distinguish this part, under the name of aetiology (from αἰτία, causa).

Therapeutics (θεραπεύω, servo) teach the nature & arrangement of medicines, their right application to diseases, & their modus operandi — an epitome of Materia Medica.

Boerhaave however & other old authors under the name of Therapia include the Practice of Physick, which we make a distinct branch. —

1814.

Dr Barton recommended the following books to be read during his lectures. — On Therapia, there is no excellent system — Dr Gregory's is very imperfect; Dr Duncan's a very elegant Latin work but not translated, & containing many grossest errors — Dr Cullen's on the whole is the best tho' not perfect — this Dr B— uses as his textbook — (Barton's Cullen) — In Pathology I have no work to recommend — Gobius is a Classic work, but deformed with too much Medicina obsoleta — In Physiology Blumenbach is the best — Richerand is more extensive but contains too much Speculation —

In the Practice of Physick, Dr Cullen's 1st lines must be read over & over again — (Barton's edition) —

Extt. from Doct Barton's lectures 1

Nov. 4th 1813

The Institutes of Medicine consist of three parts, viz. Physiology, Pathology & Therapeutics - to these has been added a fourth part the Hygeine or the art of preserving health.

It has been usual to commence the course with the Physiological department but it would seem rather more proper to defer this to some future period, when the younger part of the class, who are the majority, shall be more acquainted with anatomy - and it would appear preposterous to describe the physiological functions of Respiration, circulation, digestion, secretions, &c - before the student is acquainted with the lungs, the heart, stomach &c - For these reasons I have deemed it more proper to Commence with Therapeutics -

The Therapeutical department, tho' blended with Physiology, is however a truly practical & at the same time philosophical branch of the medical institutes - it treats of the nature of aliments & medicines & of the methodus remediorum - it treats of the mode of administering

remedies & of their modus operandi - thus it appears that Therapia is a condensed view of the materia medica; tho' it does not treat of the individual remedies, but deals more in generals, & is I think properly termed the philosophy of the materia medica. — The Therapia has a close connexion with the beautiful science of Botany

the 1st subject to be treated here would perhaps be a general sketch of the Therapia; but this is subject to the same objections as the Physiological department. I shall therefore Commence with "the means of acquiring a knowledge of the Therapeutics —

The first knowledge of this branch was derived, I think, from an instinctive operation of the mind - this is particularly the case in brutes, but I believe is equally true in man the mind of man has its instincts, a fertile source of improvement, and independent of his rational powers. an example of this may be found in the following fact. In all countries, insulated from the civilized world, as well as in the civilized part, the inhabitants are in possession of some plants, of the same family for the cure of their diseases — thus the

uva ursi is known & used in the old continent for calculus, and in this the inhabitants make use of American plants of the same natural family for the same purposes, as, Vaccinium, Andromeda &c. ~~There are~~ ~~amongst~~ the other means are Chemical examination, botanical affinity, ~~sensible~~ the sensible qualities, & experience. But we should pay some attention to the doctrine of Signatures - this is the opinion of the old school, that plants which resemble certain parts of the body in form, must be useful in the cure of ~~such~~ the diseases of those parts - ex. gr. if a plant with two bulbous roots be found, it would be said from their resemblance to the testes, that they must be aphrodisiacs & likewise adapted to the cure of diseases of those organs - they are certainly aphrodisiacs in a certain degree, inasmuch as they are found to be a very nutritious aliment - if a plant is found of the form of the heart, it must be a cardiac. if of the form of the liver, it is useful in diseases of this viscus - as the Hepatica growing in this vicinity. very yellow plants abounding in yellow juices ~~useful~~ in Jaundice - Among Indians, this opinion is found also, for they sleep on the skins of bears to make them courageous &c. & avoid the mole, lest they should become blind - this doctrine is very ancient & existed in the days of

Queen Elizabeth & James 1st. Porter says plants which resemble in form of the liver are useful in the Cure of diseases of the liver. Lord Bacon observes, that writers say that the ~~ape~~ heart of an ape worn near the human heart exhilarates & raises the spirits, because the ape is a merry animal.

As to the Chemical examination of plants, tho we owe more to Chemists than to any other class of men, yet I doubt whether the Chemical analysis of plants be of so great importance to Therapeutics. it is true Chemical resolution is necessary to ascertain in what part of the plant its virtue resides. thus the virtue of opium resides in some individual part of the plant; & here Chemistry comes to our aid & aids us to ascertain in what part. Opium is immersed in water & another portion in alcohol. the water ~~dissolves~~ dissolves the gum & the alcohol the resin. thus we have the two substances separate & by trial we find the resin to contain most of the astringent & narcotic power of the plant. But a minute analysis of plants is generally useless. for example the abbé Fontana found the venom of the viper when analyzed to give a ~~contain~~ of the same products as gum Arabic, & nearly in the

same proportion? perhaps the time may
come, when we shall be able to ~~ascertain~~ obtain it
active principle & ascertain in what part of the plant it
exists — The same observations holds with regard
to the analysis of the atmosphere —
~~Botany~~ Botanical affinity ~~affinities~~ Botanical affinity signifies
the resemblance between two plants of the same
family; not exactly in outward appearance
only, but in the internal organization of the
plant, in the flower & fruit — Thus Tobacco,
Mullen & Digitalis are immediately known
to be different plants, but yet are remarkably
similar, & have a family resemblance in their
flowers & fruit — If Botan affinity has any foun-
=dation, these three plants ought also to resemble
each other quoad vires; which is the fact. Tobacco
& Digit are strikingly similar in their properties,
& even Mullen is a narcotic, tho' Cullen adduces
this example to refute the botan affinity — but the
most beautiful example is the Hydrastis Canadensis, & the
Xanthoria, of the family of ranunculaceæ which by examination are found
to belong to the same family. all are of a deep yellow wood
& all intensely bitter — but this affinity is by no means

without exception - for the potato is a species of the Solanum, or nightshade which last is very poisonous; even here however the rule is not wholly unfounded, for the herbage & the young potato are narcotic. But Colocynth is extremely acrid, tho' a species of muskmelon. another exception exists in the difference of various parts of the plants - as the strawberry, vine & root are different in property - the mayapple is very esculent & pleasant, the leaf is a deadly poison, & the root cathartic.

The sensible qualities, taste, smell, colour; are these of any importance?

Doct. Cullen lays it down as a rule, that all substances destitute of taste & smell, are inert & should be rejected, ~~and without~~ except as nutrientia; ~~& those~~ but this is not wholly true. many plants & minerals, which have no taste are however powerful medicines. the venom of the Rattlesnake has no smell - the Ticunus ~~[illegible]~~ has no smell, a saccharine & slightly astringent taste; tho' a single grain of it applied to the skin of a rabbit or other animal will kill it in 15 minutes. The Colours of plants are said to be indicative of their qualities - Linnæus gives us these aphorisms.* 1st. pallid colour indicates insipidity -

"nimium ne crede Colori"

1814

Means of acquiring knowledge of the properties of Plants are
three, 1st. Instinct - 2d. Signatures - 3d. Botanical affinity. 4. Sensible
property - 5. Experiments on animals - & 6. Experience -
5. Experiments on animals - thus if Digitalis or opium be
found to have a certain effect on one individual, we conclude
it would have the same effect on others of the same species. But as
it is dangerous to try on the human subject, medicines are gene-
rally first tried on brutes - but this mode is fallacious - for some
substances will kill one animal, which would not hurt another,
& somethings being found harmless in brutes, may be fatal to the
human species - Many of the most active poisons for warm-
-blooded animals, have no effect on the cold blooded ones. -
6. Experience - the whole course is a commentary on this; yet,
as Dr Cullen remarks, sometimes very fallacious. -

this rule, tho' not quite true, is however always true with regard to those plants, which are naturally green, but ~~so~~ lose their colour by being blanched. as celery. the green part of this vegetable is very deleterious, but when blanched, it is robbed of its noxious qualities — hemlock when green is a powerful medicine, but if grown in the dark, or having lost its colour by long exposure to the action of the light, it loses its virtue & is quite harmless. 2d - ~~Yellow or green~~ green crude-

3d yellow indicates a bitter principle; this is generally true.

4th Red colour marks acidity - Cranberries, Currants &c yet beets when red are sweeter than white ones —

5th White indicates sweetness; tho' the last instance is an exception. but white currants is an example & the rule generally holds. 6th Black indicates an unpleasant taste — the black currant for instance is very unpleasant both in taste & smell, & proves purgative to some — —

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* "Color pallidus insipidum, viridis crudum, luteus amarum, ruber acidum, albus dulce, niger ingratum indicat" Linnaeus — — for this & all the latter part of this lecture, See Cullen's mat. med. p. 85 - on means of &c —

Nov. 5th. Doct Barton

I yesterday spoke of the means of obtaining a knowledge of the virtues of plants; the first was an operation instinct, independent of the rational faculty; here I explained the doctrine of signatures, which tho replete with nonsense, has however lead to the discovery of valuable facts. The second was Chemical examination or analysis. The third botanical affinities; & 4th the sensible qualities of plants; of the experience, numbered among these means by Dr. Cullen, I will not treat at present, as it will be introduced in every part of the course. I will merely say, that I agree with Dr. C. that too much has been attributed to this means. a proof of the inefficacy of this experience is, that rock crystal has been said from this to be very useful.

The objects of therapeutics are the aliments & medicines, which maintain the system, & cure its diseases — I shall begin with aliments of which however I shall only treat in the general; as the individual belongs to the Chair of Mat. Med. & also I may refer you to Dr. Cullen for this will be Concluded by a physiological lecture on the food of man.

Of Aliments— By aliments we mean all substances whether from the animal, vegetable, or mineral kingdom, which Contribute to supply the daily waste of the solids & fluids of the human body. There are an immense number of substances of this description, but it is the object of Philosophical enquiry to examine what are the bases & the nutritious principles of them bodies. Doct. Cullen has offered a theory of which we shall only give an abstract— He supposes the basis to be three substances peculiarly fitted for nutrition. viz. an acid, an sugar & an oil— — That acids were of use in repairing the losses or waste of the solids & fluids was not suspected before Cullen, who however argues ingeniously, tho on an obscure foundation. He says, We are constantly in the habit of using acids, in vegetables, fruits &c; these are digested & undergo the acetous fermentation in the Stomach, it is certain that we often discover this acid in the stomach, but never in the Chyle or blood; and as it existed in the aliments, it must be assimilated & in a latent state in the blood—

But we must observe, that no one now supports the doctrine of a fermenting proces in digestion— in fact all the arguments once used to support it, are now laid aside as invalid; & it is acknowledged

that this acid is only formed in the diseased action of the Stomach - thus the acetous fermentation does not take place in a healthy stomach, but is a consequence of disease these points are illustrated in the excellent work on digestion by Sir Geo. Fordyce. But, says Cullen, there is a con=tinual tendency to putrefaction in the fluids, & it is necessary to Counteract & ~~prevent~~ this by the acetous fermentation (~~[illegible]~~ 2) - ~~It is no doubt necessary to take great quantities of acescent food, but not by preventing the putrefaction of the fluids; for whole nations~~ vegetable food is no doubt conducive to health, but it has not the least effect in preventing putrefaction indeed we may very well = subsist on animal food entirely without any acid— but we shall consider this subject more fully hereafter. I will observe however that Dr. Cullen here means only the vegetable acids, & not the mineral ones - for these

1814 he says, remain in the blood in a detached state, & come off by urine &c - & also by issues, which they irritate by their acrimony - But Dr. C. has surely no proof that they come off by issues* - as to his remark that the fossil acids do not cure scurvy because they are not assimilated in the blood, I deny the truth of it; for I remember a very severe case of scurvy in Penns. Hospital, which I cured by the muriatic acid. — the idea of the acetous fermentation pervades all his works, & the student should be cautioned against it—

* the irritation of sores by use of acids is a sympathetic action, & is equally produced by the vegetable acids, & also by horse-radish & other stimulants.

~~[illegible]~~ the fossil acids are as effectual as the vegetable in the cure of scurvy, if sufficiently diluted.

With less hesitation, I subscribe to his opinion that the saccharine principle affords nourishment. this was a received opinion long before his time, but he has taken a more extensive philosophical view of the subject than any of his predecessors. the arguments in favour of the nutritive power of sugar are very many — almost all vegetables as the date, fig & raisin contain a very large proportion of sugar; now whole nations subsist on one or more of these three vegetables, with water. the Arabs, Hindoos. &c In the date there is nothing else nutritive but the sugar & the farinaceous part, of course one of these must afford nourishment — Dr. Cullen observed what Mr. Davy has since proved, that farina by the slightest chemical change becomes saccharine therefore we may safely conclude that it is this principle chiefly that is nutritious — We have the sugar combined with mucilage in the sugar cane; this is extremely nutritious — the negroes & cattle are very well nourished by it — Dr. Rush mentions the nutriment of horses by hay & sugar — in fact the addition of sugar is an economical practice to fatten cattle. Mr. Hunter in great emaciations recommends a saccharine diet —

Nothing is now more certain than that sugar in its Saline* state is eminently nutritious — Baron Humboldt relates, that in South America the inhabitants pass their vast tracts of country, as in traversing the Cordilleras — where they can meet with no inns &c. these people always carry a quantity of sugar, because under a small bulk it contains a great deal of nourishment —

*Murray denies this, & thinks it only nutritious when combined with farina &c.

I do not however assert, nor do I believe that this diet can be long continued without producing serious inconvenience — Dr. Starke made some experiments on himself* — he found that while living upon bread & sugar, less liquid would quench his thirst, than when living on bread & water. but after he had continued this diet for a fortnight, he perceived ulcers on the inside of his cheeks, the inside of his nostril became sore, purple streaks on the shoulders — liquid stools &c — all symptoms of scurvy — he was now obliged to desist & resume his former diet — here it is plain that it produced a genuine scorbutus —

*then beautiful experiment on diet cost the Dr. his life —

Sugar is found very abundantly in the vegetable & animal kingdom & has lately been proved to exist in the mineral — In some few vegetables it is

not found, as in th fungus & marine plants — indeed some fungus plants produce it, tho' Dr. Lordge denies it — Sugar exists in many animal substances; as in milk, in honey; (this is pth veg & pt. an.) Inquiries are now making in Europe to prove its existence in th blood, which probably is th case; tho' Dr. Wollaston denies it to exist even in diabetic blood. We know that th saccharine matter is formed somewhere, but Dr W. says not a particle could be discovered in th blood; I think however that his experiments are not conclusive; & I have myself, in a patient who lost blood twice in small quantities, discovered th saccharine taste in th turbid serum; it had not th saline taste. I was not prejudiced in this case, for in fact I rather leaned towards Dr. W's opinion — We will only state th different opinions with regard to th source of th sugar in Diabetes — Dr. Cullen supposed it to arise from an imperfect assimilation of th aliments in th blood; this theory is abandoned; & must fall, if sugar does not exist in th blood — Dr W. J. Hunter supposes it to arise from a new action of th kidneys, which secrete this substance with th urine — This is th most probable, & I believe th correct opinion —

We shall conclude with mentioning two practical rules founded on two facts; 1st as there exists a large quantity of sugar in the urine of the dia-betic patient, all saccharine substances are so injurious to him; this is in fact the case; for a saccharine diet is highly diuretic — 2d. as this disease shows great quantities of sugar, which is mostly extracted from vegetables, no vegetables should be eaten — this is prescribed by Dr. Rollo — But we see that not any quantity of animal food will cure the disease, & many of Doct. Rollo's patients have relapsed, even while subsisting wholly on animal food —

In the next lecture Dr. B mentioned two cases of Diabetes; in one of which in 2 quarts of his urine, 2½℥ of saccharine matter was found; and in the other (related by Mundenus) was a fatal case, & lasted 97 days — the patient daily voided 40 lbs of water, & during the 97 days - 200 lbs of sugar. —

Nov. 6th Doct. Barton —

A few words on th chemical constitution of Sugar. — According to Cruikshank, it is a pure vegetable oxyd, consisting of oxygen 64, Carbon 28, & Hydrogen 8. Th sweetness is said to depend on th oxygen, for when de=prived of this, it loses its sweetness. Farina with oxygen also forms sugar. —

I will also say a few words on its medicinal use in th different diseases, in which it has been employed. It has been very much extolled in Pulmonary com=plaints, even in th Phthysis Pulm. but there I suspect its greatest use is its taking th place of more stimula=ting diet. as an Antilithic, it is unquestionably of great use, as Doct. Franklin experienced — It is admirably adapted to th cure of th common roundworm; but I believe is of no use x in ascarides or tæniæ. By experiments, it appears that sugar is more poisonous to th round worm out of th body, than any mineral — In dys=pepsia, according to th doctrine of fermentation in th stomach, it would be injurious; but in moderate quan=tities, I believe it to be useful, tho' injurious in large ones — In scrofula, it is improper, which is proved by two facts, th 1st is a case in which scrofula was brought on by large quantities of sugar & th 2d; that Scrofula is extremely common in th Westindies, part. among th negroes, who use vast quantities of sugar — It has been accused of injuring th

x injurious, partic. in ascarides.

Improper also in Arthritis.

Mr J. Hunter has proved that teeth are whitest in Summer; when the most veget. & sacch. matter is consumed.

teeth; this is a very prevalent tho' unfounded opinion. Dr. Cullen used to observe to his Class, that the finest teeth, he saw in Scotland were in those parts where they make (~~sweet meats~~) marmelades — I have paid considerable attention to this subject, & I think that while the teeth are sound, the sugar can be of no possible injury to them; but when they are decayed & deprived of their enamel, it is probable it may be injurious — A remarkable case is related by Doct. S——— of his grandfather, who at the age of 80 years had a good set of teeth, tho' he had eaten an uncommon quantity of sugar during bei very part of his life.

Honey is very nearly allied to sugar, tho' to be distinguished from it; ~~as~~ it is partly vegetably, & sometimes combined with the narcotic principle. the proportions of the constituent principles is ~~&~~ different from those of sugar. — Asthmatic patients are said to be relieved by honey, & in my own experience this has been verified. — I conclude this point, by observing that it is particularly necessary to keep in mind the good & bad qualities of sugar in different diseases. —

the third nutritive principle of Dr. Cullen is oil — & I agree without hesitation that ~~the~~ oils are among the most nutritious substances — According to Dr. C. certain seeds contain besides sugar & farina, a quantity of oil;

among which are the leguminous substances, as peas &c. the great nutritive power of these legumes he ascribes to the oil they contain. A proof of their nutritive quality, is that in Scotland, the labourers who are a hardy set of people live almost entirely upon them; & a Scotchman is so convinced of their virtue, that he always stipulates with his future master for a certain portion of bread & peas. It is the same with indian meal in this country. the labourers prefer it to wheat, because it is more nourishing. I am convinced that oil contributes very largely to the nourishment of the body. for oil exists in the animal & vegetable diet which all make use of; & it is taken in large quantities without inducing obesity. it does not remain separate, but is intimately mixed with the blood. no chyle generally appears in the left ventricle of the heart, (tho' sometimes it does); nor can I find the oil to appear separately in any part untill it is deposited in the adipose membrane. the facility with which it is reabsorbed & carried into the circulation proves its intimate mixture with the blood. (Dr. Cullen supposed the oil in the blood covered its acrimony, but this is a relic of the humoral pathology) —

This absorption not only takes place in the morbid state, but also in the healthy: of which we have an example in those animals, who pass the winter in a species of torpor resembling sleep, yet not so torpid as some, as their circulation is continued tho' diminished. these animals in the fall are plump and fat, in the spring are lank; the fat having been absorbed for their nourishment— the nutritive property of oil is so generally admitted, that the omentum is generally supposed to be destined to support the system* by the fat deposited in it— The facility of its absorption is certainly an argument in favour of its nutritive powers— in a horse that falls dead under the task, the lacteals lymphatics are found filled with fat— the same is said to be observed in men, that die suddenly as by an apoplectic fit, or who are hung— These are mere speculations— more proofs are necessary— Doct. Starky lived 14 days on olive oil, during which time he gained 4 lbs. he lived the same time on suet & gained 4 lbs— and found that he could be supported by a smaller quantity of oil, than of any other substance— Butter is very nutritious— the feeders of ducks & geese for the London market for the last two weeks, give them nothing but oily or fatty substances— I suspect that the common prejudices against

*— when deprived of food, by sickness or want

butter is imfounded; it generally tends to open th bowels, & of course is not, as is supposed, liable to bring on bilious Complaints — As it is not stimu=
=lating I do not always find it necessary in low diet to restrict th patient from th use of it — but when taken in great quantitiy, it induces plethora & inflam=
=matory fevers. —

I have now mentioned th acid, sugar & oil — but these are not th only nutritive principles — Man is qualified for living in every Climate, & can accom=
=modate himself to th different kinds of food of each of them he is of all animals th most strictly omnivorous — Another nourishing article is th gum mucilage. Dr Fordyce thinks that th gum & mucilage Constitute th greatest part of th nutritive principle in vegetables. Under gums are ranked all tasteless, inodorous & colour=
=less substances, naturally combined with water in plants, & exuding from them — Some of th mucilages are very nutritious — th gum arabic is of th greatest use to th inhabitants of th borders of th Nile, & th Moors whole Settlements of th Moors live upon it dissolved in water, forming a viscid solution or mucilage — it is universally known as very nourishing, & thus used in Pulm. Consumption &c In a case of Catarrhus vesicæ, with extreme emaciation Dr Kirkm & myself supported th patient several weeks by th

mucilage of Gum Arabic alone. Dr Cullen says, Gums in powder resemble farina, and are composed of oil, sugar, and farina; as salep. But the Chemical Composition of these substances is better understood: gums are now said to be composed of Carbon, Oxygen Hydrogen, Azot. & (time) some Phosphoric acid - Gums are therefor much more Complex than sugar, & they Contain less oxygen than it. All the bases of nutrition of Dr Cullen are now decomposed, & it is not now known in which of the Constituents the nutritive power with in acids for instance perhaps it is the oxygen contained in them - perhaps it is also oxygen in sugar &c. Dr Girtanner says that mucilages are not nutritious, but he quotes as an example the oyster, which will be generally acknowledged as nutritious.

Nov. 8th - In speaking of sugar I should have mentioned that Sir John Pringle has endeavoured to prove that pestilential diseases (as Dysenteries &c) were less common than formerly, & that this was owing to the introduction of Saccharine matter, as food - I think it a matter of great doubt whether these diseases have diminished, tho' Sir John P. assumes it as a fact - and there is so little foundation for his antiseptic virtues of sugar, that the Yellow fever has raged most inordinately, where they make vast use of sugar -

Nov. 8th. Doct. Barton—

Doct. Rush used to introduce into Therapeutics some articles on Cookery—I shall say but very little of this, not because I do not think it of Consequence, but because our time will not admit of it—I cannot however help mentioning an elegant way of preparing arrowroot.—to a common desert-spoonful of powdered arrowroot, add as much soft cold water, as to make it into a paste; then add hot water—if wine be allowed, port or Claret may be added to this without Coagulation—

I should not here think it necessary to prove the nutritive qualities of water, if only some learned men had not lately denied it—when we consider that most of our diet owes so much of its bulk to this substance, & we must conclude that it has some part in nourishing us—I will however endeavour to prove it by detached facts relating to brutes as well as to the human species—(D. B. here related 3 cases of men who had lived a considerable length of time on nothing but water) Among brutes there is a great difference in this respect—Sheep for instance can not exist a long time with no other

water thanth dew; while horses, cows &c require a regular supply. It is said that th armadillo does not drink any water; this I doubt very much; land tortoises are also said to live without water; but I have kept them & am sure that they drink a very great quantity at a time, tho' seldom. — A large Rattlesnake was in my possession 2 3 months & subsisted on nothing but water — he was very powerful, & when I killed him — on dissection his omentum was found to be full of fat, tho' he had passed one winter in th Semitorpid State — thus it appears that this fat must have been formed since winter, while subsisting on water. — this proves that fat & poison may be both derived from water. I kept a treefrog 24 months & some days in a phial filled with water; & killed it by a rough experiment — Fish, tho' of the most voracious animals in nature, can however subsist a long time on water alone. Gold fish I kept in water, changing it water every 3 or 4 days that they might not be nourished by substances in solution in the water, or by insects, I put them in distilled water, impregnated with atmospheric air, & covered th vessel closely with muslin &c — they however

lived & grew considerably, & voided faces to the last. — Plants are also capable of subsisting on water — Mr. Crell placed plants among gravel, sprinkling them with water — and analysing them (of which he was eminently capable) found the same products as in other plants. Some vegetables live on absorption from the atmosphere — thus the houseleak & other succulent plants grow very well in the dry situations, while they suffer in gardens from too much moisture — Even Chemical Analysis would indicate water to be nutritive; it being composed of Oxygen & Hydrogen, which enter so largely into the most nourishing substances, sugar, gums &c. — The medicinal qualities of water will be considered hereafter when speaking of cold, hot & tepid baths —

Concerning the nutritive power of some articles, there is more doubt — Carbon, which is pure Charcoal & suspected to be an element, I believe, ought to be ranked with the nutritive substances — When ~~in the state of Gas~~ in the state of fixed air, it is very nutritious to vegetables, & Mr. Ingenhouz says it is the best pabulo for them —

carbon also affords food for certain animals, as the common domestic poultry & more so to hogs. — In treating of sugar, it was remarked that it contains carbon — gum which is more nourishing than sugar contains more carbon & hence I think it probable that these substances owe part of their nutritive power to carbon. —

I cannot omit saying a few words concerning a physiological question, viz. the difference between vegetables and animals. all allow it to be extremely difficult to ascertain it — & the most eminent Naturalists say that no line of demarcation can be drawn between them — but Mr. of France & Mr. Caru. Smith think they can draw the line of distinction — they say, plants receive their nourishment from mere inorganic substances alone — & animals receive their nourishment from organized substances alone. accordingly they say animals cannot subsist on inorganic, or vegetable organic substances — it is very easy to refute the former, for animals can subsist on water, which is inorganic — the latter part is more difficult to refute; tho' this is certain, that some vegetables can live on substances that have

been organized, as is the case with the
of North & South Carolina — this question will
be renewed hereafter —
of Calcareous earth as a nourishment — I used to think
but now am very sure that Calc. earth is fit for
nutrition — Dr. Cullen was of the same opinion,
tho' he omits it in his aliments — and Dr. Fordyce
says absolutely that animals do not derive nou-
rishment from it; as it is only deposited in
the membranous parts, & there are the nutritious
articles — but we might with the same propriety
say that the membranous parts are mixed with
them & that they are the only nourishment. but
both are nutritious — Calc. earths are found in
sugar, vegetables & animal fluids — tho' this is
no proof that it is necessary for nutrition, for
iron is found in the blood; tho' not so generally
diffused as the Calc. earths; phosphat. lime is which are even found
in the semen, which is said to be the most
elaborated of the fluids — but other proofs arguments may
be adduced — Some fish, as the cod & flounder, eat
live upon shell fish; here the principle part
of their food is calcareous earth — Among birds also,
the gulls swallow the long cylindrical bones of
animals without breaking them — the lower

end of the bone is first acted upon & dissolved, then the upper one. — the gelatinous part here consti= tutes but a very inconsiderable part of the mass of food. — there is a very curious fact in the Canary bird. when she is laying eggs, she requires calcareous earth, as food; if deprived of this she dies of difficult parturition — it may be said that they act as stones or pebbles to grind the food; but pebbles or pieces of brick will not answer for the Canary bird. — Dr. Thompson has mentioned this & says it is necessary to form the shell; if this is the fact, the earth must be digested, carried into the circulation & secreted. this would prove the facility of its digestion &c; but I doubt whether it is necessary for the formation of shells for many other birds form shells, tho' they have no calc. earth with their food, but it is necessary for the health of the Canary bird. — If a woman while pregnant break her any large bones, the callus forms very slowly or not at all — this is generally accounted for by saying that Nature is so intent upon her work, that she neglects this as of minor consequence — but this is no explana= tion at all — Mr. Reeves mentions a fact, which is to our purpose — a hen while engaged

in the act of Copulation, fractured her leg; Mr R. put it together carefully & bandaged it. the hen after this laid eggs without shells for some time and being killed, the leg was found perfectly healed.—

While a woman suckles an infant, her urine contains less Phosphate of lime, than at other times. If the facility of digestion can be a proof of the nutritive power of any substance, Calc. earth must be allowed this power. phosphate of lime is easily digested. small bones are often swallowed & digested without any difficulty.— The Laplanders make bread of fish bone & pine bark. now bark not being very nutritive, the fish bone must give them nourishment — for if the bread were not found to be nutritious, they would not use it so much. In South America also, a bread is used, the basis of which is fish bone; this was disputed by Gomicida, but Haller answered. "Non credo" — but now Baron Humboldt repeats it & adds, that they live almost entirely upon this bread — In fact our cerealia, wheat, rye, barley, buckwheat &c all contain calcareous earth.—

Nov. 9th. Doct Darton — Perhaps we derive a strong argument in favour of the nutritious power of Calcareous earths from their effects on vegetables — I allow it is not always safe to argue from vegetables when treating of animals or viceversâ; in fact according to Mr. Davy it is absolutely unsafe. for this philosopher supposes plants to be mere automata, destitute of any irritable principle, and that all their nourishment is absorbed, they having no power to act within themselves — this doctrine appears to me totally ridiculous. In the mean time it is certain that Calcareous earth are an important article for vegetables — every one knows that the mould lying under a stratum of gypsum or. is much stronger, than that in other parts but on this subject I will refer you to Darwin's Zoonom. Nutriment. But how does gypsum act? we will say a few words on the its invigorating & fertilising effects on vegetables — some suppose it only acts indirectly & not by being absorbed or by stimulating the plant, but by attracting moisture from the atmosphere for the support of the vegetable — there is no proof of this position — tho' nothing is more known than it has a great power of attracting moisture — thus Mr. Pallas says, the Calcareous clifts of mountains serve as a species of Barometer — Some suppose it to act totally as a condiment; not being absorbed, but stimulating

the plant, serving the same purpose in the vegetable as pepper does in us. this has much probability but no proof in its favour. Judge Cooper has suggested an opinion, that it acts as a stimulus, but not in the healthy state, but on the most earthy parts, which it kills by this stimulus; the nourishment by this means being carried to the more healthy part, & the dead parts forming a manure. this is ingenious and may be worthy your investigation. Some say it is absorbed & taken up into the plant, there to serve as nourishment & this is clearly a part of Mr. Davy's opinion. It is highly probable and almost certain that it does is taken into the plant. this is not proved by it's being found in plants, for as Mr. Crell observes, they can form it, as we form the iron of our blood. But plants growing among calcareous earths, contain more of them, than those of the same species growing in a neighbouring soil, where there are none of these earths. timber growing in calcareous soils is more solid & less perishable than other timber. thus the oak of the limestone counties of this state, Maryland Virginia &c. is more durable than that on the seaboard; & ought therefore to be preferred for shipbuilding. we do not certainly know in what manner the limestone produces this effect.

It will perhaps appear ridiculous to speak of light among the nutrientia; but when we consider that plants deprived of light, are unhealthy & void of the usual property of other plants of the same nature, may we not suppose that there really exists a nourishing quality in light? I do not contend that it is necessary to support life; for in the mines where the unfortunate victims of human avarice are secluded from the cheering rays of the sun, the functions go on, respiration is not impeded, the stomach does its duty &c, but do they go on as regularly as in the light? How vast is the influence of light upon the complexion the human beings living in mines, about the poorer class of men in cellars &c, the labouring men, are usually pallid, leucophlegmatic &c - the celebrated Miss Carter says that ~~amongst~~ in all the convents she visited in Germany the countenances of the nuns were mild, but indicative of unhappiness, & almost cadaverous. thus in the cells of the nuns, not even sanctity will supply the place of the influence of light. A gentlemen from Mexico, mentioned to me that nuns were particularly subject to schirrous mamma; this may be owing to want of exercise &c, but the want of light may also contribute to it. An examination into the effects of light would be

color only interesting, but would occupy too much time; we will therefore only take a rapid survey of them — Animals susceptible of the black colour, if secluded from the light are white — Worms living in other animals, or in wooded ar white — The Treefrog, which generally remains in the shade is of light yellowish colour; but if exposed to the direct influence of the light, becomes of a dark green — I have often noticed that locusts first issuing from the ground are light, but soon become dark, when the light acts upon them — plants are white when they first issue from the ground &c — Negro children are far from being black when first born; & actual experiments have shown that the black colour is accelerated in them by exposure to the light — the black colour is owing to a particular disposition in the rete mucosum at a certain time after birth — if therefore a negro child were confined for 3 or 4 years in mines (immed. after its birth), probably it would retain its parent's features, but little of their peculiar colour, & would perhaps remain light during its whole life — The hair of cats is lighter towards its roots, where it is secluded from the light &c &c —

But these are mere speculations & I do not wish you by any means to give implicit credit to them. I acknowledge, that I have erred from the subject, & that the lecture has been strictly miscellaneous; but since I have said so much on the influence of light, perhaps you might be curious to know my opinion with regard to an important question, viz. whether the several tribes or species of men are descended from different origins, or all from one source & that Climate has produced the changes in their colour. I am not now prepared to answer the question fully, but shall speak of it hereafter — meanwhile, I shall say, that I think, that however diversified, they are all descended from the same stock & that Climate has produced the changes. This will be my opinion, until anatomical researches shall show a difference of structure, such as Mr W White of Manchester states, viz that the forearm of the negro is longer than the whites &c — It is the prevalent opinion of the physiologists of Europe, as well of infidels as of pious men that we are all of one species — they subdivide into 5 species,

all Changeable into eachothers - 1st the Caspian, 2d the Mongolian, 3d the American, 4th the Malaic, 5th the Ethiopian - the first Class comprehending the Europeans (except the Laplanders &c) ourselves; as also the moors who are greatly calumniated, when called black - the 2d class comprehends the mongul Tartars, Chinese, Laplanders - 3d the American; these in my opinion are the Mongulian - 4th Malaic comprehending those who have dark complexions black hair not in the least crisped, known formerly by the name of Indians; also the Hindoos - 5th Ethiopian comprising all Africans -

While the seed remains in the earth, light does not assist it, in fact light prevents germination; hence in Cabinets, if seeds are wished to remain as specimens & not to germinate, they are exposed to a strong light - in this it differs from heat, for this is of great assistance in germination - but after the first effort of germination is over, & the plant has once met the light, it cannot exist in a healthy & vigorous state without it - - plants in Cellars &c. always turn towards the light - a remarkable & well attested instance of this is related by Mr. Webster, in New England; a potato ~~upon~~ in a corner

of a cellar, at 20 feet distance from the only aper=ture, which admitted light into the cellar, germi=ated & the vine running in a straight direction to the aforesaid aperture, issued from it — In hothouses plants always incline towards the windows — Lupines are known to follow the sun in his course.

Hence light may be said to be a powerful stimulus on plants — two plants im=mersed in water in the same temperature, one placed in the light & the other not, it will be found that the one in the light will absorb water much faster than the other —

The agency of light on the colour of vegetables is immense — to it the most gaudy colours are to be attributed — It would take too much time to give many examples — the [illegible] of Virginia.

Tho' light be an immense agent on colour, yet it must not be concluded that no coloured plants exist in the dark — There is a whole Class of vegetables, if they can be called veg=etables, which flourish when deprived of light — Baron Humboldt says the darkest fungus is to be found in mines, some of them are of the most lively colours, which they cannot

owe to light— Most subterranean plants indeed, perish in the light— this is attributed to the oxygen, which light is said to disengage from plants &c — But to return to my subject, not only Colour, but odour, taste & are subject to light— those plants, which continue open day & night, give more odour in the day than at night; to this rule there is no exception— but some plants open only at night and give no odour in the day. — The most poisonous plants, if growing in the dark, become inert— hemlock in coalmines is pallid & almost inert, tho' so active in the light— it is said that one grain of hemlock grown in the light, is more than equal to 20 or 25 grs of that from mines & yet there is a memorable exception to this rule— Dr. Blake, says that the Digitalis, which grows like mullen in Constant exposure to the sun, gives a miserable medicine, & that to obtain powerful foxglove, it should be selected from among the thickest hedges &— the Agency of light in producing Sugar is very great; (contrary to Mr Davy's opinion)— hence fungus plants Contain no Saccharine matter— in the palm tree, the Sap drawn in the daytime contains more Sugar, than that drawn in the night—

might not this be applied to Diabetic patients
if the above speculations have any truth in
them, would not confinement in a dark room
be advisable, thus abstracting a powerful stimulus
to the evolution of Sugar ——

Nov 10th I closed the last lecture the subject of aliments,
by observing, that light was not to be ranked among
the nutrientia, but was a powerful stimulus,
without which the functions would indeed go on,
but some of them not so regularly ——

Nov. 10th Dr Barton — On Condiments & food of Man

I shall treat very briefly of condiments, not because they are unimportant, but because Doct Cullen in his Mat. Med. treats them extremely well & to him I refer you

Condiments are those substances, whether solid or fluid, employed by men not to nourish, but to stimulate the organs to their duty — under the names of Seasonings, Pickles &c.

If we are to believe the poets, the simplicity of food was in the early ages so great, that they subsisted on Chesnuts, acorns &c & occasionally animal food, without any condiments. But I do not think it probable, that there ever existed a nation, however small, who used none of them, tho' many individuals may be found — it is an instinctive & natural appetite, that urges us to seek these articles. Animals of all kinds seek them; some drink the saline waters, eat the earths containing salt — Many birds are observed to use the stramonium seeds, also pecora, but both in such small quantities, as render it reasonable to suppose, they use them merely as Condiments, & not as nourishment.

The most universal and important Condiment, is the Sodaor common salt, improperly called muriat of Soda. when on the subject of the materia medica, I spoke of it among the tonica; but it is not necessary for me to speak of its medical qualities, tho' I will say, it is one of the best tonics — Animals have a natural instinct for salt: tho' it is not necessary at one table, yet it is peculiarly calculated to promote our wellbeing — All nations, even Indians use it, or ashes of certain plants containing an alkaline salt; some use the acid juices, as the oxalic acid with an alkali, as in the berries of the Sumach —
It has been said by Dr. Robertson & others, that the Indians of this Country were unacquainted with salt — this is false, for the very books which Dr. Rob. consulted even give the details of their mode of obtaining or manufacturing it — There is indeed a large body of men viz the Icelanders, who use but little salt, but they use ashes in its place. — having thus shown the universality of its use, I will now go on to speak of the inconveniency attending the use of it —

Dr Cullen says that a salt diet is one of the causes of Scurvy- we will not fully discuss this point here, but under the head of Scurvy- but a few words on the subject now. Dr C was so fully persuaded of this effect of salt, that he supposes a saline state of the blood to exist in scorbutic affections & says that the serum actually contains salt- he expresses his surprize, that Dr Lynn states, that salt does not exist in the blood of scorbutic patients- he also agrees with Dr Hull in the assertion that crystals of salt being &c - - - - - - - I have never examined the blood of scorbutic patients, but I am very sure that Dr Hull's assertion is incorrect, for no other persons have mentioned it as a fact; and I think Dr Lynn was probably Correct in his statement. — But to show that Scurvy is not necessarily induced by a salt diet; Mr Kelly aged 77, had lived entirely on salt provisions, & never could eat fresh meat without nauseate, yet was very healthy & had no symptoms of Scurvy, not even in his gums. - an intelligent and experienced sea captain informed me, that he had never seen scurvy connected with salt diet, but always attacking the lazy fellows, whatever

might be their diet. — Another evil has been attributed to Salt; it has been said to bring on nephritic pains, and Calculus. I will only say here, that a false Chemical idea of the formation of calculi gave rise to the prejudice, and that Salt in small quantities and muriatic acid are good antilithics. Salt is an important remedy for worms. Another charge has been brought against it; that it is injurious to the teeth. And indeed Dr. Priestley told me, that Prof. Sund* from Iceland had the finest teeth he ever saw, & that the professor told him, the people of Iceland all had beautiful teeth, probably from their eating no salt. But perhaps the climate may have produced this — for it is known that in very cold or very warm climates the teeth are very good; & it is only in the variable climate, as in this, that they are apt to be defective.

Red pepper or Capsicums, of all acrid Condiments this is certainly the most tolerable some; it is preferable to the black pepper, because it is more soluble & therefore will not irritate the stomach so unequally — it has less objection against it than any other acrid Cond.

It is supposed to be very useful in the gout —

Dr. Bancroft says, that himself & several of his patients have been cured by Capsicum — but I think it does not exempt the subjects of gout from its periodical returns; it may & probably does like opium, spirits &c, change & alleviate the attack & perhaps change the direction of the disease, sometimes to the cost of the patient — The same is the effect of Portland powders — Mustard seed, horse radish need only be mentioned — See Dr. Cullen's Mat. Med. I must mention asafœtida; this is used but very seldom as a Condiment in this Country, but in London it is added to the beafsteaks, to which it gives a flavour resembling that of garlic — of Garlic, Leaks, Onions &c See Cullen — Opium is sometimes used as a Condiment, & certainly is a very excellent one in Dyspeptic or Hypochondriacal habits — Pickles &c = Cullen = When commencing the subject of aliments I promised to conclude that part by a physiological lecture on the food of man. But we are not now prepared to enter fully into this subject, as the anatomical description of the teeth, & the functions of digestion ought to precede it —

No question has agitated the minds of Physiologists to a greater extent than this — when we see man eating whatever is presented to him, we naturally conclude, that he is destined to live on every kind of food. he can accomodate himself to every species of food, &c, as we have said above, most strictly omnivorous; while the lion & eagle &c cannot eat live on vegetably & others cannot eat animal food — It is said by some to be a scriptural point — some passages it is true would indicate, that men lived only on vegetably; but there are many others, where animal food is mentioned — it is in fact merely a Physiological question — No doubt in the early ages, the food of man was very simple, for the country where the first men are said to have lived furnishes the dates & other very nutritious vegetably — but when men began to remove from those countries, I suspect they soon began to eat everything, veget & animal indiscriminately —

Religion has introduced many changes in the food of man, some proper & others unnecessary — the Indian will not eat the

opossum, because it has hands; this teaches him that he ought not eat his fellow-beings of the same species with himself— We are told that the question is easily solved by the teeth of man— for he has the Cuspidati of the lion &c carnivorous animals, therefore he is destined to eat animal food; he has also the molares of the herbivorous class, therefore he is to eat vegetables— but whole tribes of monkeys have the same teeth & yet live on vegetables alone— but, say they, the form of the teeth is not of so much Consequence as another circumstance— the carnivorous animals have their teeth Coated plated with enamel— thus the tyger, hyena, &— thus we judge the mammoth, whose bones are found lately, to be a carnivorous animal, because his teeth were plated over with enamel; whereas herbivorous animals have a bony structure under the enamel &c

but this is not universal; for a species of mammoth known in Europe has the teeth in this respect like those of carnivorous animals; yet he is undoubtedly herbivorous—

The Comparative length of ye intestines is another mode of distinction between Carnivorous & herbivorous animals — ye Carniv. generally have a short tract intestinal Canal; ye herbiv. a long one — ye Cause is visible for in Carniv if ye intestines were long, ye flesh would putrify — whereas in herbiv. there is not ye same danger; for vegetables do not putrify so readily as animal substances — Man's intestinal tract is of an intermediate length; hence he is Calculated to eat both kinds of food — There is an interesting exception to ye short intestinal canal of Carniv. animals; all carn. animals living in water have a long tract of intestines — as ye Seal — perhaps ye uniform temperature of ye medium in which they exist, or its coldness may tend to prevent putrefaction, & thus prevent ye inconvenience of long intestines —

The Hindoos live entirely on rice, & are a weak race, & D^r Brown used to say, that one yorkshireman living on beef, would be an overmatch in wrestling for 3, 4 or 5 Hindoos

Some have said that animal food was prejudicial to the action of the mind; for great men are generally moderate eaters of animal food. Sir Isaac Newton for instance, when studying on a difficult subject particularly applies is said to have lived entirely on vegetable food. But Lord Bacon, who was equal in mind to Newton himself, lived largely on animal food. Mr. Hume says Dr. Priestley, to whom was the greatest eater of meat I ever saw. & his favourite hours of study were those immediately succeeding a hearty meal. this was so well known, that when dining out he was always expected to retire sometime after dinner to study. — Haller was of the same opinion as we are, that man is destined to live on both kinds, & says that when he lives on vegetables alone, he was more disposed to bilious disorders & less inclined to connection with his wife. — It is said that nations living on animal food are more fond of liberty & not so easily conquered — but the Greeks & Romans are at one time free at another slaves without change of diet — animals living on vegetables are said to be more timid & those on animal food more bold & strong — but the elephant is herbivorous, as also the beaver, which

which is famed for its strength and sagacity.—
We will conclude this article by saying, that
man is evidently destined to live on a mixed
diet, composed of animal & vegetable food,—
tho' capable of subsisting on either, if com=
=pelled to do it—

Nov. 11th. Doct. Barton.

I have now to enter on the medical part of therapeutics; but within what bounds I am to confine myself is a difficult question for the division is very different in different authors; some are very confined & others encroach on every other chair — for instance of this, I will read to you two definitions of the Therapia — Professor Gregory of Edinburg defines it, Remedierum virium & modi, que &c, this is about that which I have adopted — Another definition is; Therapia is that part of medicine, which arranges the objects of the Materia medica into order, which treats of the method of preparing them, which treats of diet, & the true method of curing diseases, whether by Surgical operations or by the aid of medicines — this obviously encroaches on every chair —

The first subject then is the disposition or arrangement of medicines into order. here then is a very great difficulty. Many writers have disposed the medicines according to alphabetical order — but as Dr. Cullen very properly observes, it is not an order of Science — It has been proposed to arrange them, as they

affect different parts of the body; this was the ancient mode, when remedies were supposed to act specifically on the various organs, & were called the medicamenta hepatica, uterina &c but now that Specifics are considered as very rare, & we cannot say to any medicine go here & not there; this method has been laid aside tho' I think too much, for there are many more specifics than is generally supposed—

The next arrangement is that of Botanists who being of the most learned men in Europe, supposed they had a right to give an arrangement of medicines according to their arrangements of the plants— Other botanical arrangements however have solicited more attention than their last— Linnæus arranged the articles of Mat Med according to his Sexual system— this is generally followed in Botany, but is too artificial in the order of medicines— thus in the 5th order are placed the Peru. bark, coffee, stramonium &c. here he jumps together into one order, nourishing, poisonous &c but in some he is very happy—

But it has been supposed that a better arrangement would be to follow the natural

(1814) this mode is adopted in the excellent work of Murray.

arrangement of plants, but there are here also exceptions; for instance the onion, the leak, garlic, squill, the veratrum which is very poisonous, the wild pineapple the beautiful asparagus are all ranked under aliaceæ — hence this will not answer as a mode of arrangement, tho' it is very well used as a subordinate order, to which we shall refer occasionally —

the pineapple & aloes are here next to cucullatæ.

In modern times Physiological arrangements have been attempted, from dividing the body into systems — Dr Rush hinted at something of this kind, and distributed the body into 9 systems — but this will not answer in the practice. for many of these affect 2 or 3 or more systems at the same time — Dr Darwin, (every opinion of Dr D. is worthy our attention) attempted an arrangement. he divides remedies into 7 articles; 1st Nutrientia, (same as Cullen's) — the 2d Incitantia, the Stimulantia of Cullen tho' better defined by Dr D. — under this he ranks the passions or emotions of the mind; as joy. 3d Secernentia; a very large class, comprising Diuretics, Diaphoretics, Sialagogues, &c Cathartics when not violent ones: the 4th the Sorbentia which

(1814) this opinion acts on the vascular, glandular, & nervous systems — it acts on stomach, skin &c —

stimulate the absorbents & comprize the astringentia & tonica of Cullen, besides many, not astringent or tonic, but which act on the absorbents— 5th Invententia— which invert the natural actions; as Emetics: here also violent cathartics (though I think improperly), & more properly the errhines— 6th Revertentia, which restore the natural action; nearly Cullen's antispasmodica. 7th The Torpentia, all such substances as do not stimulate the more than the food; I think this is an unhappy order, & it should comprize those which reduce the action, as the Sedantia of Cullen.

I will now say a few words of Specifics— I have said above that the old arrangement depended too much on the supposition that medicines acted on particular organs; but I am more & more convinced daily, that there are many more specifics, than are allowed — the Professor Gregory says there is no specific for a scratch — yet I think that the tartar emetic, the mercury, are specifics as emetics & sialagogues — it is also said that ergot has a specific action on the uterus this I do not wholly credit —

Linnæus also made another arrangement, by dividing into 6 orders. 1st. Evacuantia; 2d. Alter-antia, 3d. Nervina; 4th Muscularia, & 5th Visceralia (acting on particular viscera) & 6. topica — We will only observe that the general orders are sufficiently correct; but in some of the inferior ones it is the reverse — there is much ingenuity with much idle nonsense. Dr. Cullen's arrangement is the most generally followed; but I shall not follow it precisely — My 1st. order however will be Astringentia* & my second Tonica — a general character belongs to both; & both act on the System by a bracing or tonic effect. — but astringents are said to produce a Corrugation or con-striction of the fibres, similar to that, which tannin produces on hides in tanning. (See Cullen) according to him they contract longitud-inal fibres making them shorter, & circular ones in a different manner — he goes on the unfortunate notion, that they produce the same effect on living as on dead matter — hence he introduces tanning; Dr. Gregory also goes on the same principle, tho' not so far (See Dr. Gregory) — to show that the mode of operating is different in living & in dead matter,

* Speelman, Cullen, Gregory, Duncan &c all have a class of astringents.

it will be sufficient to mention a single circumstance — no experiments have proved that a particle of the astringent tho is ever absorbed into the living system; whereas the astringent is taken up by the hide in tanning & gives it firmness — a hide weighing 20lbs after it is tanned will weigh 22 or 24lbs —

Some however have gone to the other extreme, & say that whatever effects these substances produce are to be ascribed to their sedative power — Thus in haemorrhage, galls or alum are said to constrict the extremity of the artery & put a stop to the flow of blood; but M.r Moore says no constriction takes place, but the haemorrhage is stopped by the sedative properties of galls & alum — Gerardi in his experiments, injected into the stomachs of several rabbits some astringent medicine; he suffered some of them to die by the effects, & killed the others. he found the stomachs &c. contracted, that the pylorus was almost closed & without any marks of inflammation — From these & other experiments, I am induced to believe and to adopt the ideas of astringents which I suppose to act by corrugating & constricting —

An opinion of Dr Darwin's concerning the astringt action, if not correct, is at least very ingenious. When ~~all~~ alum is applied to the extremity of the tongue, a sense of constriction is perceived, spreading over ~~it becomes hard, dry & this by degrees spread~~ over the whole mouth, which is diminish in size — this, accordg to Dr D., is not produced by its acting on the muscular fibres, tho' these are approxi-mated: but, says he, the alum being ~~acts~~ ~~as~~ of the class Sorbentia, acts by stimulating the absorbents, which take up the interstitial matter — Nothing is more ingenious than this explanation, but it is not satisfactory — I believe they do actually corrugate the fibres. I will ~~nev~~ only men-tion an experiment on vegetables — of the Spurge or Euphorbia, a plant containing much milky fluid, 3 branches were cut horizontally; the branches were equal in size, & the same temperature — to one of them was applied a weak solution of alum, to a 2d. of copperas & the 3d was only wiped — the discharge of the milk stopped very soon in the 2 first, rather sooner in the first, to which alum was applied; but in the 3d. the discharge continued for 24 hours — thus a bloodvessel is stopped by alum &c — If it is necessary to apologise for introducing vegetables, I will only say that the therapia considers them ~~as~~ also & this was Dr. ~~Gregory's~~ Brown's opinion —

Nov. 12th Dr. Barton—

We will now make some observations on the portion of the System the astringent medicines particularly affect. Many of the first practitioners suppose that they act only on the parts to which they are immediately applied & not thro' the medium of nerves or other parts—but this I think erroneous, & upon this error, physicians are more sparing in the use of astringents, than they ought to be. Dr Heberden says, he does not lay any stress on the internal use of astringents, because they do not appear to him likely to do any good; nor has his experience shown them to be useful even in hæmorrhagy except applied to the bleeding vessels—here is an instance of too much medical theory; it does not indeed appear from reason at all likely that a grain of arsenic divid. in 16 doses, should prevent a paroxysm of an intermittent; yet this is an obvious fact—his experience also, he says, proves them useless &c; here, I can only say, his experience differs very widely from mine; hæmorrhages are often checked by the internal use of sugar of lead &c—

It is generally supposed that they are carried into the Circulation by the lacteals & lymphatics, as madder, which colours the urine & even the bones. I believe it is a fact, but yet I think the quantity carried into the Circulating fluids is very small; so small, that we cannot ascribe their effects to this circumstance, tho' Mr. Home has maintained, that all the effects of bark should be attributed to its being thrown into the circulation — ʒi or less of bark will prevent a paroxysm of an intermittent; & a few grains of sugar of lead put a stop to a violent uterine hemorrhage — now these quantities are so small, that when diluted in the whole mass of the blood, they could not be supposed to produce these effects — besides the effect is produced in so short a time — a dose of sugar of lead will check an uterine hemorrhage in 20 minutes — from these reasons I think the effects are not produced by the substances being taken into the Circulation; I therefore subscribe to Dr. Cullen's opinion, that they produce their effect on the Stomach, & that this effect is extended from the Stomach to the uterus &c by consent of parts.

this I consider as an established fact; (thus far I wrote last year, but since that some experiments have created a doubt in my mind & render it perhaps worthwhile to retrace my steps; but these experiments must be repeated again & again, & as yet, as I said, have only produced some hesitation.) –

I used formerly in the Mat. med. to dwell considerably on the Chemical Composition of astringents &c, but now I will say but a word – The Astringents are (generally) compounds; as the metallic astring. salts & the veget. astring. to alum sugar of lead &c; neither of the individual component parts are is astringent – The Gallic acid used to be considered as the astringent principle in vegetables, but this opinion is now exploded, tho' the Gal. acid reigns very generally thro the vegetable astringents – Dr. Woodhouse thought at one time, that he had shown, that the Gal. acid with argillaceous earths formed the vegetable astringents; but Dr. Walker of Virginia has proved (I believe to the Conviction of Dr. Woodhouse) that the the Gallic acid prevails very generally, but it is not only with argillaceous earths, that it forms the veget. astringents veget but with many other

In the meanwhile, the most powerful astringents are from earthy or metallic bases with some particular acid —

A few words also of on the Pharmaceutics — an excellent Pharmaceutical rule for the administration of Astringents stomics, is to give them always in substance, if possible; this especially particularly to Bark — but resinous substances are an exception; for Dr. Lee has proved that the pure vegetable resins are totally insoluble in the stomach; hence it is ridiculous to talk of giving the pure resins of opium, bark &c. but if united to a small proportion of extractive, or gummy matter, they become quite soluble in the stomach — The next mode of administering astring.ts is by decoction this extracts a large proportion of the virtues of the substance; but it is often made very badly, in open vessels &c, & much of the power is thus lost; & Dr. Cullen thinks there is also a decomposition of this mode has no advantage over the hot infusion, in which there is no decomposition — the hot inf.n of bark for instance is made by pouring viij of boiling water on ℥ij of the bark — — the next is the Cold infusion, as in prep.d bark, steep ℥ij of bark in cold water,

the gummous astringents or those composed of gum & resin, are soluble, but pure resins are totally insoluble by the gastric juice.

and allowing it to settle — these infusions are a very agreeable form, where the patient is unwilling or unable to take the bark in substance. Another mode is by a kind of trituration, (the Count de Garennes); but is too expensive to be introduced — — As to Tinctures, they should be used as little as possible, (for reasons well known) except in a very few cases; as in Typhus fever &c —

Of the diseases in which the astringents are principally used — this is the manner in which I shall proceed after every order of remedies, as did Dr Gregory — however it will be merely a few hints —

In all ages & countries the astringents have been recommended by the vulgar & regular practitioner in intermittent fevers. it is one of the first & most valuable discoveries in medicine; for intermittents rage in every Country & the saying of Mr. Voltaire is infamous; "that it is a wonderful proof of an overruling providence, that the bark should grow in S. America, & the intermitt.s rage in Europe" — for intermit. are as frequent in S. A — as in Europe — — I shall soon have occasion to speak of astring.ts in intermit. fevers,

* also in remittent, tho less useful, & still less so in continued. —

when on the subject of them fevers I omitted
now only observe that the astringent
principle alone does not appear so efficacious
as when Combined with some bitter substance—
In debility the use of astringents is very old—
Debility however is a very vague term, & them
they are often badly administered in these
Cases; x as in the Cachexia, which comprehend
a vast variety, & astringents cannot be advisa-
ble in all of them— Dr. Cullen tells us, that
in the debility accompanying the forming
stage of Dropsy, the iron combined with an
acid is very useful; but Dropsy often com-
mences with an increased action of the heart
and arteries; thus Dr C. may mislead the
Student— there are however dropsies, even febrile
in which, the fever regularly intermits; or remits. in these, the
astringents are surely proper. Dropsy
also sometimes accompanies the Typhus
fever, & I have given the bark in such cases
with success—

x in many cases of great debility an increased arterial action exists, & of course them improper.

They are particularly esteemed in excessive
evacuations— Dr C. says they are much used
in hæmorrhagies, but that he has been disap-
pointed in them— I will only observe that

hæmorrhages arise from various causes — (aphorism, omitted) — but in many cases astts. useful. —

Next to hæmorrhagies, Dysenteries and diarrhœas, have been treated by astringts. Many of the best authors say that they are the best remedies in Dysentery — but we now find that they must be used generally in dysentery, at least in its commencement — this is not however always the case; there are some constitutions which are liable to Dysentery, & in which it is a mere local affection, as much so as gonorrhœa, in whom little or no inflammatory action exists; in these astringts are useful — but generally not in first stages, as the inflam. symptoms contra-indicate them; they become necessary in the declining stage, when the febrile action has disappeared.

Old authors say astringt. always to be used in Dysent. & modern ones say never. — both wrong; in the 1st stages of Dys. certainly not.

They are much more properly praised in Diarrhœa — but even here Dr. Cullen gives them too liberally; for diarrhœa seldom comes on without some fever; & we more frequently use astringts too soon, than too late. — As to Gout, we shall speak of astts in our future lectures on this subject — I will only say that they are almost always im=proper in arthritic diarrhœa —

1814. November. in the catarrh now so prevalent, astring. very useful after proper depletion. — nothing so effectually prevents a recurrence, as bark. —

For Catarrhal affections, which are so troublesome & obstinate, generally yield to astringents, tho' no authors mention it — Catarrh is almost always an intermittent. Leucorrhœa, a serous discharge from the vagina — as it depends on a lax habit, is often treated by astringts; Dr. Cullen says they are not proper; but I am astonished at this decision — for they, with a well regulated diet, & blisters, have, in my hands, performed many cures — Dr. Darwin gives a useful distinction between the Leucorrhœa with or without fever —

*This is a local Dis. yet often requires V.S. &c — but generally yields to Astringts.

* Fluxus ~~Caliacus~~ Cœliacus or fluor albus of the intestines. Gonorrhœa, ~~Cystorrhœa~~ &c — Dr. Cullen says astring. will not cure gonorrhœa, giving himself as an instance — but astringt injections are without doubt very useful. In Diabetes, astringts ~~are~~ formerly were highly recommended — but of late they say the disease will not yield to them, but must be treated with V.S. blisters &c. but I have seen alum often, of the greatest benefit — tho' generally it is more of a constitutional disease —

Pyrosis or Water brash – I once nearly succeeded in curing by astringts a case of very long standg & in which every other remedy had failed completely. In the Colliquative diarrhœa, even in the sweats of the confirmed Phthysis Pulmonalis, they have been found very useful in checking sweats – In Phlegmasia, most generally improper, but in Phlogosis, the preparations of Zinc & lead are the most valuable remedies – in inflam. of eyelids &c. externally applied; but not generally to be used internally in inflam's except when they are intermittent, as frequently is the case with the acute Rheumatism, & in this case it is necessary to use astringts. Scurvy; in this disease, they are very good: Cæsar's army were cured by bistort – & proper diet – Amongst the neuroses also; in Tetanus, Chorea S.V., Epilepsy, hysteria; – In tetanus, bark &c. hereafter, in Chorea; iron, Zinc, &c – tho' Epilepsy often resists; yet it more frequently yields to astringts. & tonics than to any other medicines – but when plethora prevails, they are not proper –

In hysteria, they cannot be dispensed with. In that Protean like disease, the asthma, between the paroxysms astringents, as bark, are to be used. Also in that curious disease the angina pectoris, in England & all Europe bark is administered. Hooping Cough — In some vesania, the bitter astringents are very useful; particularly in melancholia with depressed state of the system. also in those vesania following or connected with intermittent fever.

In tænia Capitis; they are used externally & internally. In tetters also — the astringents augment the powers of the Mercurial ointments; hence in Cutaneous diseases, mercurial ointment with powdered bark &c is an excellent application.

& Calculus & nephritis calculosa more effectually relieved by vegetable astringents, than by anything else; as by uva ursi. Dr Cullen's theory with regard to their action in these, is that they absorb a morbid acid ~~in~~ in the stomach, which is the cause of disease. In obstinate desquamations of the skin, the tinct. ointment very successful. —

Nov. 13th Doct. Barton of astringentia cont. & tonica

Writers of M. Materia Medica all speak of the utility of astringents in nephritis, & patic. th. nephritis Calculosa. th most eminent authors admit it, & I have seen enough of the Cases to know that astringents will relieve th symptoms of Calculus, & still more th nephritis with gravel — It is a subject of curious investigation & belongs strictly to this chair, to enquire how they produce this effect — I am, for my own part, not satisfied as to th modus operandi of these medicines — Dr. Cullen says, that astringents have an affinity for acids; & th great majority of Cases of nephritis with Calculus, th stomach is much disordered, & a morbid acid exists in it; now th astrings combine with this acid, and neutralise it, thus relieving th most distressing symptoms — In proof of this Dr. C. says, Alkalin medicines, which also combine readily with th acid, have th same effect. = It appears to me that Dr. C. tho' he does not mention it, used th Magnesia alba

I would observe that a morbid acid does exist part.y in the gouty nephritis; therefore I am more inclined to lean towards Dr. P's opinion, particularly with regard to the use of the magnesia alba. Dr. Bran also does not hesitate to assert, that magnesia acts by neutral-izing the acid; & in fact I think the system not without plausibility.

Linnæus supposed them to act as Roborantia, nephritis being attended with great debility; Prof. Rush also leaned to this opinion; but I should object to it, 1st. because some of the most simple are very slightly roborant, as the magnesia, & the uva ursi — now tart is much more roborant than these, & yet does not relieve the symptoms. I know from my own experience that they relieve even when they must inevitably be improper, if they acted as tonics.

Dr. — says that the kidneys are always disposed to form great quantities of uric acid, & supposes the above medicines to prevent this action of the kidneys.

however unsatisfactory the theory may be, it is nevertheless certain, that they do neutralize the acid, & relieve the symptoms &c

The lax state of the system, on which rickets are founded, requires the use of the astringents, parts the metallic ones — Perhaps it would be difficult to prove that they produce effects cures when the disease is present; but when the rickety diathesis is pre evident, they may check the disease; & I am sure I have seen many fine Children preserved from it by the use of these medicines —

Another disease nearly allied to Rachitis. the Scrophula, according to all authors, demand the astringent tonic treatment — Much has been said in favour of these remedies in worms; I dismiss the subject by saying that they cannot be of any service, except as tonics.

The use of astringents in ulcers &c. belongs to the Surgical chair but I will observe, that they are too much neglected —

I think I have now mentioned the greater part of the diseases in which astringents are used; I might now say when they are contraindicated, but I will omit it at present; the there are very few states of the

system where astringents under some form are inadmissible, or even useless.
A catalogue of the most important astring[ents] may be acceptable — the vegetable kingdom is the great storehouse, from which we obtain ~~our~~ most of our important astringents — the barks, the galls — terra japonica ×, yellow gum of Botany bay — portwine, uva ursi, rubia tinctorum which is the weakest; they are here placed in the order of their comparative strength — the mineral kingdom affords two very important astringents, the sugar of lead & alum — the animal does not offer a single one used in medicine —

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× Tormentilla — Heuchera. Geranium maculatum. Hæmatoxylum

I now proceed to the second class of remedies, viz the Tonica, or Roborantia — by tonics we mean all articles or agents, fitted to increase × the general or partial debility strength of the system; without now adverting to their modus operandi — We exclude from among the tonics all powerful stimulants, which heat the system, & are followed by an increase of debility — Our best tonics are those which stimulate the least; thus gentian is better than wine —

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Dr Gregory's definition is a little different, & perhaps more correct. — he supposes them to affect particularly the vital solids, (the solidum vivum of Cullen), & ~~that they~~ not only by tonics he means not only those which increase strength, but also those which ~~reduce~~ repress too great tone & bring the system down to health...

As to the term tonic, it is so generally known & well understood by in common language, that it may very properly be retained; perhaps the objection, that it is too mechanical is founded & Roborantia be a more proper term. Dr. Darwin ranks the astringentia & tonica under his Sorbentia — the Muscularia of Lindsey are the same — Dr. Cullen says there are no other tonics than the bitters; but the Dr. should have considered that all bitters are not tonics; as the Digitalis; & many tonics are not bitters, (Opium & Ignatia) as Cold air, Riding on horseback &c. (Dr. C. is wrong in confining tonics to the medicamenta.) — The tonic power resides in an immense number of articles &, I confess, particularly, tho' not solely, in the bitters —

What are the parts of the system that tonics affect particularly? Some say the muscles; whence called Muscularia; some say on the whole system — the operation of tonics is certainly favourable to the increase of muscular power; but it is equally certain that they act on the whole system; on the heart & arteries &c. tho' Dr. Cullen

The term tonic is not ~~proper~~ proper as it involves a physiological question... two powers are supposed to reside in the muscles; 1. the *vis resiliendi* or Haller's irritability; & 2. the *vis tonica*, or that natural distention of muscles in the quiescent state. now tonics are so named from the supposition that they increase this *vis tonica* — they most certainly do, but also affect all other solids —

Cold & heat, bitters, & astringents, metals & subst. of opposite qualities are yet possessed of tonic power — thus it is impossible to determine in what part the power resides. —

denies that they stimulate or increase the heat of the system — in many instances however they certainly do; thus every one will find that he will direct of gen: tian will stimulate his system & increase its heat more than an equal quantity of pure alcohol (brandy) — Hence particularly remarks their stimulating properties: they increase the not only the frequency but the force of the pulse — We conclude therefore that all tonics are a series of Incitantia or Stimulantia & by this pro: perty they produce their effects — but they stimulate only to a certain degree, & not so as to induce a Consequent debility —

xxxx. (of the virose qualities of bitters accord to Cullen) omitted — xxxx

Nov. 15th. I will only recapitulate one point: I consider all astringents as tonics, but with other qualities also: Tonics (or Cullen's tonics) are a class of medicines which increase the partial or general strength of the system without increasing arterial action or heat — different from those which stimulate & produce a less lasting effect. I differ however from Dr. C in this; for I think it is by a certain degree of stimulus, that they produce their effect. I considered yesterday Dr. C's error, that all only true tonics were the bitters — & that bitters contain virose quality, hence must be deleterious; I said, many bitters have not it, & in those which have, it may easily be separated. I conclude by saying that tonics are in high repute as anthelmintics, but I do not think them very efficacious.

Nov. 15. Doct Barton — tonics contin.. —

~~Dose &c~~ It is usual in the mat. med. to treat of each individual tonic, but it does not now belong to my chair; I shall however give you a cata=logue of some of the most valuable, as this may be very useful to the younger part of the Class — Of the vegetable kingdom, the bitters; those which are pure & uncombined with the astringent &c as

3 species of Gentian, Centaury (centaurium minus — Chironia angularis or Americ. Centaury), Amer. Columbo (or Frasera), Quassia (simarouba), Europ. Columbo, Helleborus trifolius (or Zanthorhiza), Tanzy (chamomelum) &c are the principal pure ones — the ox bile, & indeed animal bile of all kinds have the properties of the vegetable bitters — after them come the bitters combined with an astringent quality. P. bark, dogwood, &c. — the aromatic (or Callida amara & Mullen) bitters are truly stimulating, as the aristolochia longa, Serpentaria, Cascarilla, Angustura bark — these aro=matic bitters are much more stimulating, than the preceding bitters, & hence they are more feeble tonics, & less to be depended on in intermittents &c — they have however the advantage in some diseases, as the Pneumonia Typhodes &c. — there is another class which contain deleterious principles; as the ~~nux~~ vomica, Ignatius' (or Ignatia) bean, & even the lupulus —

These may be used when deprived of their deleterious qualities —

The mineral k.d. affords a large number of valuable tonics. Iron in its various preparations, the carbonate, the sulph. muriate &c — Fermentum tartarizatum — Copper, Cuprum ammon., Sulph. cupri, verdigris externally, acet. copper. — Silver, the nitrate in Epilepsy & Paralysis — some preparations of Gold — oxyd & muriate §. — Of Zinc, the flores Z. the sulph. & acetat Zinc, this last is particularly used in Gonorrhea. Bismuth, the white oxyd — Mercury; perhaps its mild preparations may be used as tonics, in hypochond.— the oxyds of Arsenic may perhaps be tonic; however I think less properly according to my observations, for they do not increase strength, but induce torpor, particularly with tela cellulosa; however they are very efficacious in intermitts where tonics are required. Arsenic also excites inflam. in different parts of the body: thus its action is becoming more & more obscure — this placed among tonics, but I suspect its action is mechanical (in worms) To this head we must refer also the muriate of lime & m. of barytes — Soda mur. or common salt, the most certain of all tonics. The mineral acids, sulphuric, muriatic & nitric particularly — also phosphoric. & indeed some of the vegetable ones, tho' less than the min. — Lime, Soda, potash, must not be omitted — I will now give a list of miscellaneous tonics not belonging to either of the kingdoms — Cold bath is one of the most important; to this the absence of rickets among the aborigines may be imputed —

Iron in its metallic state, is too much neglected. . —

§ Platinum muriate of. I have used in Syphilis, & think it has cured it in several cases. . it is at least capable of suspending the syphilitic action; & this is all I expect from prepns. of gold — the prep. used was a solution of mur. platin. with soda ℥i. containing gr. 2j of pure platina — Dr. Bolman who made it tried it on himself, & took to the amount of ℥ss. beginning by small doses.

it is also celebrated for the cure of Scrophulas Asthma, Chorea, tetanus &c. — Drinking cold water, perhaps of the temperature of from 44° to 56° Fahr. when the atmosphere is 96 or 98° — this has frequently removed the Dyspepsia of warm weather — Ice creams come under this head. Cold air — tho' I do not go so far as some, & refer the moral virtues, love of liberty &c to climate, still I maintain that climate has a great effect upon the strength of man — not merely the temperature perhaps, but the agitation of the air over a healthy tract of country — hence Storms &c invigorate vegetables very much; thus after a storm, we see the peach tree & the apple blossoming again — Warm bath — but this more properly belongs to stimulants — hot water is said to be tonic — thus Mr. Burke when composing, always drank water at the temp. of 100° F. if fatigued he drank 4 or 5 quarts in the morning — but tepid always occasioned nausea &c — All sorts of exercise — horseback riding is famous in Consumption, tho ~~Sydenham~~ says it has done more harm than good — An obstinate case of ascarides, of several years standing, × by Linnæus

(1814 Sydenham certainly considers it a kind of Specific for Phthysis)

& attended with hypochondriac symptoms; in some of the worms had been voided by tonics &c. but riding on horseback beginning moderately & then taking a long journey brought away millions of them & the patient returned in perfect health — Gestation differs from the last; because the muscles are not exerted — Riding in a carriage, is better in pulm. Consump. than on horseback. it also is an excellent remedy for uterine difficulties; Chlorosis I have seen cured by a ride of 60 miles in a waggon — Swinging; Darwin places this among the incitantia, but if nausea is produced, it is certainly depressing. — Sea sailing is recommended in pulm. consumption, Epilepsy &c. Pulmonary Consump. I believe, is often arrested by this mode of gestation — It is said, that it is very convenient, as it does not oppress even the weakest, besides being continued uniformly day & night for months; & the nausea is said to be favourable, also the sea air — but I am certain, that patients, who are much debilitated, cannot bear it.

In fact many die a few days after their embarkation. and I believe the sea air not to be so useful. & some say it is peculiarly unfavourable. – Frictions by the hand, flannel, brush &c – to which is often added something stimulating as alcohol; these are particularly advisable in Scrophula & Anasarca. – – Diet properly regulated – "apta diaeta" – "victus idoneus." this must be ~~as~~ deduced from the experience of each individual & must vary in different Constitutions – Irregularity in excretions – Costiveness produces amongst other symptoms, headache, heat of the Skin &c – hence the necessity of daily evacuations – Cheerfulness often depends on this, & I have seen sullenness removed by a dose of Rhubarb. – the same attention is to be paid to urinary discharges; this may prevent calculus &c – Tycho Brahe & Dr. John Fothergill are said to have died from retention of urine – & Caligula invented a new mode of torture, by tying up the penis so as to close the urethra, after making drink a large quant. of diluent liquids – – Amongst the tonics I must place Venus Medica. Excesses are certainly amongst the most debilitating – on the other

hand absolute restraint from those pleasures is not conducive to health — Altho' Epilepsy has sometimes occured in actu veneris, yet a patient of mine assures me, that he never was more free from Epileptic symptoms, than after coition — Some affections of the mind have a highly roborant effect even in Paralysis — Ambition — Cæsar, Mahomet & Napoleon, &c all subject to epilepsy, have escaped it probably from this passion —

Tonics are applicable to the same disease, as we have enumerated under the head of Astringents

Nov. 16th. 1813. Doct. Barton —

I now enter on the third class of remedies, viz. the Stimulantia or Incitantia — Such agents or means, as increase the sensation in the sentient parts, & promote motion in the muscular ones — Dr. Darwin* defines them, such as increase the exertions of the irritative motions — I said above that the Roborantia were the greater part of them Stimulants, but their stimulating effect is not near so great, as that of those now under consideration; A remarkable property of the true stimulants, as distinct from the narcotics, is the inducing of sleep or torpor — I shall not now enquire whether this sleep is different from natural sleep — nor shall I examine Dr Brown's beautiful theory, that it is merely the result of previous stimulus. — Dr Crumpe (in opinion) has illustrated this theory better than Brown himself — I will however take this opportunity to observe that Chemistry has made us acquainted with the narcotic principle & indeed us to believe that this principle is the real cause of the sleep —

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* this author calls them incitantia, but perhaps stimulantia is the better term, because incitantia has been the term incitant has been applied by Brunonians & others to irritants which act mechanically —

this narcot principle, say the Chemists, is nothing
but the prussic acid. - thus the prunus lauro-
-cerasus, one of the most powerful narcotics, &
contains large quantity of the Prussic acid, &
this acid when separated produces all the
narcotic effects of the plant. - Dr. Cullen &
prof. Gregory think that these articles are not
stimulants, but sedatives - thus in fact we
use opium more frequently as a sedative than
as a stimulant - but their primary ope-
-ration is always stimulant - thus the
also Belladonna produces great heat &c & sometimes scarlet eruptions on skin; - their
stimulating effects have been generally extinguished by their
effect on the pulse; but after the some time, there
is a depression - Suppose my pulse at present 70.
I take 1 gr. opium, or ½ gr. belladonna, in 5 minutes
my pulse will be increased by 3 beats - after 32
minutes it will be at its maximum, abt. 77. after
this it returns to its natural state - even when
the doses are greater, the increase is never beyond
12 beats - but their stimulating power may
be shown by other means; & it was only
because they did not ~~judge~~ of the consider the 1st effects,
x of N York. that Dr. Bard & others have decided opium to be a sedative -
the flushings of the face, hot skin &c are all proofs.

1814
Belladonna pro:
:duces a heat, ~~wh~~
which by the ther:
:mometer very
nearly reaching
the heat of Scarla:
:tina, in which
the heat is the greatest
that ever occurs.
(Currie says he saw
one case of Scarlat.
in which skin was
at temp. of 112°. Fahr.
gener. 108°..110°. EB)

Under the influence of Belladonna, the skin is not only red, but very hot. I saw one grain produce a redness & heat over the whole ~~the~~ body, & great thirst — Opium does not however increase it so much. De Martinus x x x says it lowers the heat one degree, but there must be some mistake, or it produced a diaphoresis perhaps. but we are very sure that opium does not increase the heat very much — Under the most ~~some~~ narcotics, there is a great thirst, even in persons in whom wine would not produce thirst; sitis molestissima, says Murray, from Belladonna — Their stim. effect appears very evidently in the secretions 1st. all allow opium & all other narcotics (tho' none so certain as opium) to increase the perspiration; 2. Some narc. (even opium), are remarkable as diuretics — tho' Dr. Crump asserts that opium represses ~~asserts opium to increase~~ all ~~any~~ secretions, except that on the skin 3. the narcot. show their stimul. power on the liver & under the lightest attack of yellow fever, or during a recovery from it, there was always a pain in the liver; this was infallibly increased by opium &c — Haase Boerhaave & Cotunnius found that animals with a gall system, had a much larger quantity of bile in the gallbladder, when under the influence of opium

4°. In moderate doses narcot. do not often purge — but digitalis even in small doses, is sometimes with difficulty prevented from purging, hyoscyamus, Tobacco &c do purge — & opium in the colica pictonum where there is a great degree of torpor is said to be a cathartic — In a case of Catalepsy, 8 grs of opium purged largely. 5°. Some narcot. increase pulmo=nary secretion, tho' some deny it; in myself opium surely does produce an increased secretion of mucus. — Dr. Darwin says all narcot. are stimulants, & the secretories, but we are deceived, because we can see the effect in some secretions, as on the skin &c — but in others we cannot, where there is a repository, for in there, there may be a great increase of secretion, but the finer parts again are absorbed — — the effects of narcot. on the mind are certainly stimu=lating — in some of the eastern countries, opium is taken in large quantities, its exhilarating effects are well known — the Turks take it before battle or when oppressed by cares — thus amongst the unfortunate, & sometimes the men of talents fly unfortunately to ardent spirits — even in our own times, a genius of vast force of mind &c &c × × × × Dr. Brown

*Haller says it represses pulmonary secretion.

The narcot, besides their general stim. effects, have also locales - thus they affect the skin to an inordinate degree.* Stramonium occasions abscesses on the surface of the body; while hemlock stimulates so violently, that the cuticle is often removed. Some sorts produce the same effect, probably from their having eaten some narcotic - A careful examination of the bodies of those, who die under the influence of these substances, will also show their stimulant power. a woman died after an enormous dose of laudanum; the stomach was found inflamed & gangrenous & the ventricles of the brain were full of water - belladonna & laurocerasus (tho' Cullen denies the last) have the same effect - even Digitalis - a large dose kills. The bladder was found very inflamed - in fact those, who take it, frequently complain of an uneasiness in the bladder - thus dissections prove the stim. effects of narcotics -

They also increase muscular action - thus the troops of Mark Antony in the Parthian war received a very great increase of muscular power from eating the Datura ferox - Thus there is no hesitation in saying all narcotics

* 1 gr. of opium will often produce a severe proximity in 50 cases out of 100.

Cicuta has the most remarkable effect on the skin. a Case of Lepra in Penns. Hosp. (which proved fatal) Every day that Cicuta was taken the skin became clean - 2 or 3 handfulls of scaly matter fell off - & when the Cicuta was omitted, the scales remained & the skin was rough.

are stimulants, but they act very differently. Belladonna & cicuta act on the skin, but feebly on the pulse. — Among the most remarkable effects of narcotics, are hydrophobia and Tetany, of which there are numerous instances — Perhaps those cases of hydrophobia which have yielded readily to remedies, have been produced in this way. —

It is still a subject of dispute whether narcotics are absorbed into the circulation, or produce their effects only on the parts to which they are applied, from which they are communicated &c. The latter opinion was till lately almost universal. even Boerhaave notwithstanding his humoral pathology maintained this opinion — but Haller was persuaded he could detect the odour of opium in the perspiration &c — I saw a case of mycosis when the mother, who was suckling a babe, took opium for hysteria: the child became drowsy & dull, which went off when the opium was laid aside — Mr Brodie's* numerous experiments prove that it is absorbed into the blood — In a Catalogue of the Stimulantia — 1st. of the two organized kingdoms — Of the animal stimuli there are but few in use, the musk, castor, (they are among the antispasmodics of Cullen)

* Mr Brodie says that arsenic &c. tartar will have no effect unless absorbed into the circulating fluids. The modern French Physiol. suppose it to be taken up by the minute veins. I believe the narcotics are absorbed to a certain degree, & have some effect in that way, but that they act almost wholly on the solidum vivum & their effects are communicated by sympathy, or thro' the medium of the nervous system.

(and the [among] reverteulia of Darwin), Cantharides, including the potatoe fly - Ammonia (either from the vegetable[x] or animal kingdom) - Ether, alcohol, wine - the cerebisiæ fortiores (strong beers, porter &c) The Narcotics 1st papaveraceæ 2d Solaneæ (i.e. Stramonium, atrop. belladonna, [digitalis, nicotianum] Solanum) 3d Umbelliferæ (hemlock &c) 4th pomaceæ, (prunus lauroccrasus & wild cherry tree &c [prunus virginiana]) ~~& 5th the compositæ.~~ —

x ammonia may be obtained from some plants of the class tetradynamia - as mustard horseradish &c. & also from some of the Cryptogamia, as some mushrooms.

Nov. 17th. 1813. Dr. Barton —

I closed the last lecture by a catalogue of stimulants; I mentioned the animal stim. in use; musk, castor &c — I then proceeded to the vegetable stim.; 1st. the narcotics; I finished the list of narcotics. —

(Supposed to be from the Laurus Camphora) (it expedites the effect of mercury) Camphor is of the vegetable kingdom, but does not properly come under the narcotics; I used to call it a subnarcotic — considering it as merely a stimulant, it would have ranked in strength before opium & other narcotics except belladonna, which would have preceded it — Next to Camphor, come the Coniferæ, the pine & fir remarkable for their balsams, or turpentines &c — then form a very valuable article next the coniferæ quoad virtutes; tho' not having a botanical affinity with the conif, yet supply similar articles — with the conif., ~~&c~~, which supply ~~are the~~ balsams of Peru, Tolu &c — Under this head come the solid balsamic substances or resins, as guaiacum, without which a practitioner would be at great loss. of minor importance is myrrh, extracted from a plant, the genus of which is not known — Next follow the Siliquosæ; the horseradish, & mustard are the principal — used ~~chiefly~~ most externally as sinapisms

the alliacea, used as condiments & as medicines;
the garlic, leak, & onion: (the virtues reside in their bulbous roots) —
they are truly stimulating plants — whether
taken into the Stomach, or applied to the naked skin,
they are carried thro the Circulation, & appear
in the urine, ipsae &c. used in Rheumatism,
intermittents &c — I agree with the late Professor
Rush, that they are very valuable medicines, &
are only neglected because so common —
nearly allied to these are the fatid gums, more
properly gum resins, of which the asafetida &
gum ammoniac, are the principal. they
are used wherever the alliacea are proper; & in
Croup are superior to the rest — they are more anti-
-Spasmodic — This closes a great part of the
vegetable incitantia; I might mention some
under the head of acria, as mezereon, indian
turnip & the Cantharides externally; these act
locally: hence the division into general & local
Stimulants is founded — I have also men-
-tioned the animal Stimulants in use:
but there are some others which ought to be
mentioned, tho' not used — there are certain

animal secretions of various kinds - the venom of the Rattlesnake, the viper & the wasp. there are also morbid poisons formed in the diseased state of the animal, as the poison of a rabid dog &c. Mr. Adams, who took the division into healthy & morbid poisons from Mr. Hunter, is blamed for adhering to it, but I think it well founded. for the secretion of healthy poisons there is an organ or apparatus, but not in the morbid. thus the Rattlesnake has an apparatus for forming its peculiar venom; but the rabid dog has not - Scarcely any vegetable is equal in power to the healthy poisons; they produce gangrene & the most immoderate pain &c. & destroy life sooner than any vegetable, excepting only the ticouna, if we believe all that is said of this plant - (accounts probably exaggerated) - It is perhaps to be regretted that medicine has not called to its assistance these healthy poisons - Haller & Pujol seeing a patient under the urgent symptoms of hydrophobia, & knowing that every thing had hitherto failed, thought they would be justified in trying the

healthy poisons; they therefore allowed several vipers to bite the patient, who recovered from the disease for which they were applied — Dr. Rush xxx. the Abbé Fontana's experiments prove, that these poisons do not act on the nervous matter; hence Sir Jn. Pringle's opinion xxx — I have myself made a number of experiments with the poison of one of these animals, & have found that that of a Rattlesnake has not the least effect on a denudated healthy nerve. It is therefore without doubt taken into the blood-vessels; tho' I do not assent to Fontana's opinion, that it destroys the vital principle of in these vessels — — These poisons often produce tetanus & sometimes hydrophobia.

Warm bath is one of the most stimulating remedies we employ; perhaps of the temperature of 96 to 98. — the abuse of it has given rise to the charge of its being enfeebling; it is so undoubtedly when carried to excess — perhaps 98.° Fahr. is too high, for this is the temperature of the Virginia warm baths, & the healthy have all complained that they were a little too warm & only the old & paralytic were found them perfectly agreeable —

Drinking hot water. Mr. Burke's custom. See above page 72.

Electricity is certainly deserving of a place amongst Stimulants & is one of the most potent and rapid — in one case it will destroy the life of the most vigorous, & in another it will revive the dying spark of life — In order to Compare it with other Stimuli, Baron Humboldt washed the middle ring of a common worm with a solution of potash, till it produced tetanus, he then passed a shock of electricity thro' it, which Cured it — from this it appears that Dr Brown's theory of stimulants is erroneous xxxx — Then experiments would lead us to employ it in violent diseases; but it must be remembered that it will sometimes produce the same disease, for which it is recommended — Dr x of Shrewsbury relates a case of a young lady, who received a electric shock thro' curiosity, which produced opisthotonos, which could only be removed by large dose of musk — When it kills passes thro' the head & kills, inflamed spots on the pia & dura mater appear, where the Shock entered & passed out — Lightning produces inflammation in a very singular manner

a violent attack of acute Rheumatism followed in one instance a Stroke of lightning tho' the person had never been subject to it before Galvanism belongs more to Chemistry; but the same effects may be expected from one as from another, as they are generally admitted to be the same fluid, differently concentrated—

Much has been said of late of the Stimulant effect of Phosphorus; I have never used it, & cannot say anything from experience Dr. Conradi has experienced the most essential Service from phosphorus, when Nature was exhausted; not after Chronic cases, but after acute ones, when the strength was exhausted by symptoms of dissolution were approaching In a case where willow bark & camphor had been given from the 5th day without effect, & a rattling expectoration & other like symptoms were present, on the 15th day, 4 grs Phosph. dissolved in ℥i Sulphuric ether. a teaspoonful to be taken every 3 hours. this was successful — Dr. Handel found great relief in Epilepsy — he discovered it by accident by seeing his patient being on the point of having an

epileptic fit, there' mistake gave her ʒj of water in which ʒii of phosphorus had been kept; this prevented the fit. Dr Handel thinks it will not cure when it is hereditary &c, but will relieve the paroxysm, & will cure it when accidental — but in 4 cases it produced bad consequences — begins it in oil & also combined with Hyoscyamus — Dr. xx thinks it of service in the Arthritis nodosa, & where a person is poisoned by arsenic — but he says it is a dangerous remedy; as it is liable to produce induration of the stomach & intestines — but only when in too large doses. he says never more than 2 grains should be taken in 24 hours — It is too nauseous in oil, & ether dissolves it too sparingly — 2 grs phosphorus, triturated with gum arabic, & water enough to make a demulsion & Anod. liq. Hoffm. gtt xxx — a table spoonful every two hours — this I shall try at the Hospital during the course of the winter —

Nov. 18th Doct. Barton — Concluded with Phosphorus.

In speaking of Electricity I have often men=tioned that much has been said of the greater or less degree of the electric fluid in the atmosphere being the cause of diseases — Baron Humboldt says the want of it in atmos. gives rise to cretinism & Bronchocele — Where these diseases reign, every thing tends to diminish the electric fluid of the atmosphere — (this is mere speculation) Much has also been said of the stimulating effects of Oxygen gas, & tho' I do not give implicit credit to all that is said of it as a stimulus, still it is undoubtedly a powerful stimulant, & increases the fullness & frequency of the pulse; it stimulates so violently as to produce death.

When animals pass into the state of hybernation, they choose a situation deficient in oxygen gas; if they are taken from these places & exposed to the oxygen of the atmosphere, they revive as from an asphyxia, tho' the heat should not be half that of their winter abode. This proves that oxygen is a greater stimulus than heat —

Another proof is deduced by some from the acrimony of the matter of an abscess, when exposed to the air. The stimulating property of oxygen is shown by the following experiment - Take the heart of a frog from its pericardium & leave it till it ceases to pulsate ~~upto~~ more than once in a minute by being pricked; tie up the vessels & hang it in oxygen gas; it will pulsate 20 or 30 times in a minute; the pulsations will diminish if restored to the atmosphere, & again increase in oxygen - (This experiment was made by Baron Humboldt)

The Passions as Anger, love, hilarity &c are very stimulants - Anger excites a heat of the skin, & everyone knows the modest blush of love & the sparkling animation of cheerful eyes - It is to be regretted that we cannot call in these powerful stimuli to our aid, whenever we wish -

In order would perhaps lead me to speak now of the diseases to which the stimulants were particularly adapted; but I could only give a dry Catalogue, and in a few days those diseases will engage our attention - I will only observe that they are indicated in all diseases founded

or on a weak action of any part of the system hence they are important in Palsy, Tetanus, Epilepsy, Typhus, Dropsy &c. In diseases of the intellectual functions, particularly Melancholia, they are indispensable.

This finishes the general view of the incitantia; these, I mean, not distinguished for producing great evacuations; for tho' narcotics do increase the evacuations, yet this is not generally the object intended, it is a secondary effect but there is a large assortment of ~~medicines~~ stimulants, which are given for the sole purpose of increasing the evacuations; here the propriety of dividing the incitantia into the Stimulantia non evacuantia & Stim. evac. The remainder of the medicines to be spoken of in the Therapeutical part of this course are evacuants, & which the following are the orders, & assortments — 1° Errhines — 2° Sialagogues. 3° expectorants, 4° Emetics, 5° Cathartics, 6° Diaphoretics, 7° Diuretics, 8° Antilithics, 9° the Emmenagogues, 10° Anthelmintics, 11° Epispastics, 12° Ecbolics, 13° Issues, & 14° Bloodletting —

Evacuants are of the utmost importance; so much so that their use is known amongst rudest Savages - The Humoral pathology of Cullen deemed them of primary consequence, to carry off the acrimony &c. The Stahlian holding up Plethora as the Cause of every disease, were always fond of the evacuants: But the Contrary Brown did not much like to recommend them, as he stimulated entirely -

The first assortment is Errhines, which promote a discharge of the mucus of the nares, of different Consistence, from the follicles of the pituitary membrane - their effect is often attended with Sneezing, which proceeds from a stronger Stimulus, but does not appear to increase the discharge - their action often proceeds no farther than to restore the healthy discharge, but often it increases it beyond this point; the effect is however transitory - they thus produce an afflux of blood from the neighboring vessels, which are thereby partially emptied. Hence their greatest use in Odontalgia combined with Rheumatism of the face -

they indeed tend to empty all the branches of the Carotids, even of the internal one; as one of its branches enters the nose. hence Dr Cullen recommends them in earache &c & they may be useful even in apoplexy— at least people in the habit of taking errhines, & liable to symptoms of apoplexy, ought by no means to leave off their habit— It seems to be the general opinion, that they act only topically, but I believe sneezing is produced by errhines taken into the Stomach— See 5th Vol. Trans. Am. Phi. S.

There are some diseases to which they are particularly adapted 1st of a local kind— In some species of deafness— Deafness proceeds from various Causes; a peculiar species depends on the Eustachian tube being inflamed near the fauces, from Catching Cold. in this kind, there is a peculiar noise heard, compared to a

Roaring deafness. roaring of distant thunder, & in milder cases, to the hissing of a [or warm water in the] tea kettle & a peculiar sensi-bility of the organ + of hearing— this species is often curable— blisters on the mastoid process; Cupping; in one case it was cured by a very

copious venesection ℥40 of blood were taken at once from the arms — Warm dress — Dr Rush used to say with reason, that the French were not liable to it, because they wore warm headdresses during the night — in this species of deafness Dr Sims (and I agree with him) has found the errhines, particularly the mercurial very serviceable —

Amaurosis or Gutta Serena — Mr. Ware says he has seen great advantage from a snuff of Turp. min. grs x & Pulv.* Sternat. or common snuff, ℥i. before he found the proper dose, he gave too large ones, which produced a hæmorrhage; which however assisted in the cure. I have used this with some success in a number of cases: a lady made use of the mercurial snuff, but had at the same time a Seton on the back of neck, for gutta serena; the Seton did not operate well, but the snuff produced a ~~very~~ prodigiously copious discharge from the nose — her sight had recovered entirely in 2 years, when she died in apoplectic fit — — I have used it often without the least effect — From accounts of authors, the errhines can be of no avail,

*the Pulv. Sternutatorius is composed principally of the Pulv. Asari Europæi.

where the disease arises from an organic affection of the brain, or from Syphilis; but in other cases they may. Sauvages mentions some cases, particularly the amaurosis plethorica, occurring often in pregnant women &c where they effected cures. —

Cataracts are said to be relieved by errhines, tho' they rarely yield to anything but a surgical operation — Dr. says the euphorbium (which is the most powerful of the errhines) will inflame the eye & cure the Cataract.(!) —

Gutta Rosacea is said to have been cured by errhines: this is an appearance on the face, resembling artificial painting, but with the finger, it is easily felt to be more elevated than the rest of the skin; it is a kind of fungous affection of the cutis — blisters appear to be the only remedies capable of curing this, the Errhines are said to have done it —

In Polypus? Boerhaave says nothing is so good for incip.t polypus as snuffing up warm water, & then dis-charging it by Sneezing. Q.

Those Errhines, which produce a very copious discharge, are justly recommended in the hemicrania — case of hemicrania cured by snuffing up the Spt. of sal ammoniac, which produced a prodigious flow of the mucus:

Nov. 19th. Doct Barton

In my last lecture I mentioned some of the diseases for which errhine were generally used; I now proceed to speak of the genial diseases, attended with local determination, in which these medicines may be of service - 1st first is the hydrocephalus internus - this arises 99 times out of 100 from an increased action in the brain, & yet among the many medicines recommended for it, there is not a single one of the order of errhine. they say sneezing would produce too great a concussion, & Dr. Patterson of London gives this reason against them, tho' he does not adduce a single case, where they have been injurious - Dr. Percival relates one case where they were of very great service - tho' I have not used them, I have no doubt that they are useful; for a discharge from the nose is always considered a good symptom - hence those medicines which produce but little sneezing, and a great discharge from the nose, as the turpeth minral must be advantageous -

1814. for children too young to be salivated, mercury will still produce an increased flow of mucus from nose.

Much has also been said of these med. in Epilepsy. some say, they increase the determination to the head, but this is not the case; I have used the

turpentine & tobacco in Scares of Epilepsy with decided advantage; in Some of these they produced Salivation, which probably assisted in the Cure—
It is probable that powerful Sternutatories are useful in Tetanus; Hippocrates says he has cured it by the use of them & Dr Moseley leans to this opinion— This is a short list of the diseases in which they are usually supposed advisable; I will now observe that they might be employed in many diseases, in which they are never used— Ophthalmia of various kinds, those particularly which yield only to vomiting— The mercurial errhines might be used in goitre or bronchocele— In Scrophulous Swellings of the neck— they may be auxiliaries in the Cynanches— It would be Surprising if they were not useful—
I conclude by saying that they are too much neglected, & their efficacy is certainly well established in Gutta serena, Deafness, Epilepsy, vertigo &c & we have the authority of nature, as Spontaneous Sneezing is always a good Symptom— thus Boerhaave says if it comes on the third day of a fever, it is an

excellent symptom — I have seen it same in the yellow fever — Xenophon's 10000 men all recovered by sneezing from the effects of honey made from ~~poisonous~~ intoxicating vegetables & lastly sneezing in hydrocephalus is always favorable — It is no longer my province to treat of the individuals, tho' I shall mention some of them — the mineral kingdom affords several, but none so decidedly efficacious, as the Turpeth min. employed by Mr Ware com-:bined with tobacco — abt 3 grs of the Tur. in 24 hours. it most generally excites a very copious discharge, & sometimes invites sneezing — White vitriol, Antimonials, as tartemet. — Lime (tho never used) Of the vegetable errhines, there are a great number; the juice or powder of the common beet, (too feeble). Asarum — (or asarabacca), this is very violent, & is the basis of the pulv. sternat. of apothecaries; it is a kind of the coltsfoot of this country — the squill, lilly of the valley, &c — As to snuff, it is used over the whole world, & is capable of doing some good, but does a great deal of mischief — potash is added to that made in this country, & sometimes

1814.
Catalogue. .
Min. .. Turpeth min.
White vitriol.
Lime (never used)
Water. .
Veget. in order of strength.
1 Euphorbium officinale (this is so powerful that it cannot be used in practice, but is confined to horses)
2 Veratrum album (the most powerful of the safe errhines)
3 Helenium Autumnale or Sneezeweed. the flowers.
4 Tobacco.
5. Digitalis
6. Asarum Europ. (the basis of the Pulv. Sternutatorius)
7. Squill
8. Lilly of valley.
9 Phytolacca decandra
10. Beets — —
&c — —

In 2 cases I have seen free salivation produced by merc. Errhines — —

Sal ammoniac, & even glass.— Digitalis has also errhine qualities— but one of the most powerful is the euphorbium; it is now neglected, I know not why; (see note 1814 last page) equal to this is the veratrum album (W. hell.); this was employed in the cataract above mentioned— none that has been mentioned is to be compared with the helenium autumnale, (sneezeweed of Virginia), for the quantity & duration of the discharge—

However important the class of errhines may be, they are not to be compared with the following order, sialagogues— which comprehending mercury is perhaps the most valuable order amongst evacuants— by sialagogues we mean those medicines which produce an increased ~~salivary~~ flow of saliva from the salivary glands— I have been accustomed to divide them into external or topical & internal; & tho' I see objections to the division, they are not of sufficient weight to induce me to lay it aside. by the ext. or topical, I mean those which salivate by immediate application to the parts— & by internal, those which always determine a salivation wherever applied, whether in stomach, or by friction.

1814 Tobacco in form of snuff produces all the effects of the narcotics, at least, when not rendered inert by habit— thus it often produces sickness— vertigo &c. Dr Cullen mentions a case when all the sympt. of dyspepsia were induced by snuff & if the snuff were omitted for a few days, they vanished & reappeared, when the snuff was resumed.—

~~Dr~~ Mr. Lorrie supposes that ~~tobacco~~ the use of snuff has increased the nervous dis— its effects are probably deleterious in mania, (case of epilepsy) tho' the use of snuff is a most preposterous habit, yet it cannot be said to have inc the nerv. dis, for I doubt whether there are really more common than formerly.

Tobacco does not appear to be obnoxious to longevity.

th operation of sialagogues is very similar to that of errhines: they produce an afflux from th neighboring vessels; hence in Rheumatism — th external or topical — called masticatories — are acrid substances applied to th tongue, mouth, or lips, which excite a salivary discharge*; I will merely name some of them — Pellitory of the wall — Tobacco (a very filthy one) — Imperatoria — ostruthia — xxx — horseradish — Xanthoxylum — Pellitory of Spain — Seneca Snakeroot (this part. useful in angina maligna) — § The internal ones are much more important than is but one which constantly produces salivation tho' many others do it occasionally — th history of th introduction of mercury into practice use, & th modes of preparing it belong to th Chairs of Chemistry & Materia Med — I shall speak first of th mode of applying, & 2°. of its modus operandi — th modes of applying it are to th stomach, to th gums, to th nose, by frictions, by socks or shoes, by Clysters & by fumigations. — It is unnecessary to say much of th first, which is th most general, & most certain, & least nauseous.

* produces great irritation, but their effects do not extend beyond th mouth.

Catalogue 1814. anthemis pyrethrum Tobac. & Imperatoria or Masterwort. Camphor horseradish Xanthoxylum or Toothachetree Seneca —

§ The internal ones are those med. which produce a peculiar fever, followed by an increased flow of saliva. th topical ones do not produce this fever....

med.? Dr. St. Clair, of London, 25 years ago, advised a new mode, by applying the mercurials to the gums (in Syphilis) - this is however deserted, probably because not efficacious - it will produce salivation, & may be advantageous in diseases of the mouth, as the angina maligna; but I would not trust it in Syphilis - it does not produce more irritation than the topical ones, which tho' they may produce a proper salivation, have however never been known to cure a case of Syphilis - When the venereal symptoms affection is removed by Dr. Clair's mode, it always appears in some other part of the body; indeed I have constantly observed, that where ptyalism is suddenly produced, as in 2 or 3 days, the affection will generally reappear - The 3d. mode is to the nose; of this we spoke in the article Errhina; some of the most speedy salivations I ever saw, were from this mode - Dr. Kuhn & myself attended the late Mr. Wescot of this city, & tried every other means of salivating him without effect, when I proposed this, not expecting a ptyalism, but only a discharge from the nose - but a salivation came on & was so copious that opium was used to check it* - Another similar case occurred in the Penns. Hospital - this might be useful in Hydrocephalus internus

Mr. Clair said it salivated more readily.

* might this not have been the effect of the other means, delayed by some means?

4th method is by friction - the unguents rubbed in - it has been supposed of consequence to apply it to parts where the absorbent vessels are more superficial (or terminate differently), hence the Italians apply it to the soles of the feet - this might have arisen from the circumstance often observed of salivation coming through the groin & thus passing immediately through the seat of the disease (in Syphilis) - tho' I do not believe this, yet I think there are parts to which the unguent ought particularly to be applied, as the Calves of the legs, the thighs, the palms of the hands, wrists &c - This no longer a matter of doubt whether friction is necessary - I do not believe a portion of mercurial ointment, however large, merely laid on skin can be of any effect; hence I believe the practice of dressing blisters with merc. ointment perfectly useless. - If the ointment does not produce salivation in the due time, Camphor will increase the power - this is an old practice, abandoned I know not why - for this reason I usually add Camphor to my unguent, usually ʒii camph to ℥iii of unguent sometimes ʒiv. Camph -

4th 5th mode is by stocks &c, this originated in Dr Stuart of Virginia — Dr S. says the mercury is taken up immediately & will produce salivation in 4 days; but I can at any time salivate myself in 24 hours — it is a very filthy mode & I do not think it possesses any advantages — Nor do I think more favourably of the 6th by Clysters; the injection most suitable would be the mercury rubbed down in g. arab. & the yolk of an egg. — the last is by fumigations —

Dr. Dangerfield's experiments tend to prove that ointment to feet have no effect, if vapour not inhaled.

Nov. 20th — Doct Barton — We will now say a few words
of the last mode, viz. by fumigations or subfumigations.
in applying the mercury in this way, we use the
fumigation will often produce salivation in X or XII hours; indeed it is said to have done it in ix or iij or iv. sulphure of merc. or Cinnabar, either topically or
generally — the patient is confined in a close
room, & Cinnabar is thrown on some coals, the
patient is enveloped by mercurial fumes, &
the Salivation certainly comes on more speedily
than by any other mode — but it is inconvenient,
as the patient might be suffocated &c. the topical
is more safe; envelop the whole of the body in fumes
except the head, so that the fumes may not be inspired
the great advantages derived from this mode have
introduced it into general practice in England
but not in this country where it is not used in one
case out of an hundred when it ought to be
I will read the history of a case from Dr. Yates, which will
exemplify its mode of acting — "a tall robust woman,
63 years of age, applied for assistance for a cough
and hoarseness; observing some scabs on her
skin, I suspected & finally discovered a tinea of 4
years standing — her pulse was weak & low, inter-
mitting every 4th beat, which was increased by a
palpitation of the heart — excrescences about the pudenda

Cephalalgia at night - She was reduced to a skeleton by the medicine she had taken - On Monday she submitted to the fumigation; 3i Cinnabar was burnt under her mouth and nose; She slept a few hours after, sweating and spitting; 12 hours after the fumigation she had spit half a pound. - & the room began to smell strong of an ~~ass~~ salivation - for griping pains, 10 drops of Laud.* in a tray julep - a torrent of sweat followed, her pulse grew stronger & intermitted only 1 in 20. I left her some laud. for the griping, which probably proceeded from taking cold in undressing - for two days she remained thus; the 3d day she had 20 stools, & griping pains - in the afternoon sweat freely &c - On Friday her throat was almost well, & the other sores were perfectly cured - ~~but~~ In a few days more she was out; but after several indiscretions, died" - - If she had given more laud. I think she would have succeeded -

*- 30 gtt. would have been better

It is necessary to mention some circumstances which retard salivation - In some the system is so much above par, that it is necessary to reduce it, before salivation can be produced - V.S. - Cold, and nitre are the means for effecting this -

As to bleeding, every one knows that it is not often easy to salivate without it in Malignant fevers. Dr Rush used to lay great stress on this point - Sometimes several bleedings are necessary, but generally ℥viii: are sufficient — It is said to be necessary to apply Cold, in the hot fevers, as in yellow fever - ventilated rooms may be sufficient & render the mercury efficacious, when salivation could not be produced in a Close room - Some recommend bathing in Cold water, ice water &c; but the farthest I ever went, was to sponge the body with Cold water; this was very grateful & perhaps attended with no inconveniences; but notwith=standing my respect for the authors who advise the ice &c I dare not however recommend it, from many cases, in which it has been injurious; this alternation of the stimuli of mercury & ice has produced many inconveniency, as Caries of teeth &c.

Some medicines are also applied, which at first stimu=late, but afterwards diminish action - in S. Caroline it is a common practice to give Nitre grs. viij or X. q. Sulth. this depresses very much & Salivation is said to come on very speedily - I have found the same effect from Digitalis - 10 or 15 drops of the Tinct. t. d. -

When the System is uncommonly depressed, we may assist the salivation by stimulants -

Blisters, Sinapisms, wine whey &c. the blisters do not act by their evacuating qualities, for Sinapisms which produce no evacuation are more efficacious in accelerating the salivation — Warm bath — I have observed the effect of this in intermittents & remittents, I have seen salivation come on in 24 hours after the bath, which it could not be induced before — this fact is well known, but I am far from being confident how it acts; it may sometimes produce the effect by its stimulant properties, but I have seen not a few cases, where the state of the arterial system was such, that its effects could not be attributed to the stimulating quality — Dr. Griffith says that smoking tobacco is an excellent auxiliary or preparative for the use of mercury to produce salivation; this I think probable.

You may perhaps expect that I should say something about the question, whether the mercury is absorbed into the circulating fluids, or not — I will lay only before you some facts — Nothing is more potent than prejudices from the 1st introduction of mercury by the

Empyrics till a very late period, ~~no one~~ not a single individual even dared to enquire, or doubt whether it was carried into the Circulation or not; it was implicitly admitted by the Chemists, (the 1st. who used mercury) the mechanical physicians, the Stahlians, the followers of Hoffman Brown, of Hunter &c & no one ever asked for the proofs — We could expect nothing else from the Chemists & mechanical physicians, but when Solid pathologists appeared we might with reason have supposed some enquiry would be made, but none ~~was~~ objections were started, as we see in Cullen & Hunter — It is true many facts are brought to show that it is in some instances carried into the Circulation. it is said mercury is found in bones &c but it is a melancholy reflection, that we are obliged to doubt the correctness of former experimenters — Of late only 3 or 4 have thought they had seen them — Dr. Bostock says he discovered mercury in globules ~~about~~ about the thorax & in the glands of the neck of a patient who had been taking it & showed the preparation proving it — Dr Thornton§ of Virginia, whose accuracy we cannot doubt, mentions a similar instance — there are well authenticated, but more facts

See Haller

one is Dr Bostock of Liverpool one of the 1st. persons of the age & the 1st. analyst in the world —

See Philos. Trans. —

§ Dr. Thornton, whilst dissector for the Anatomical Chair,

dissected a woman, in whose glands of the neck particularly, he found globules of mercury...

~~Calomel ... her ... breast~~

are necessary before we can infer, that Mercury except in some singular instances, is taken into the circulation; however I do not assert that it is not. — late Dr. Warmsley — my former pupil, who was attempting to prove the absorption of merc. into circ., performed several experiments on animals, all of which tended to prove the contrary, one only excepted; this was in a dog who was sick when the experiments were first instituted, & whom the mercurial disease actually killed; in him mercury was detected. — Mr. Berthollet says, if mercury is disguised in mezereon &c, it is still sufficient to cure syphilis; but can never be discovered in the fluids —

It is a fact well established, that a child at the breast, if the mother be salivated, will also be affected, if arrived at that age, before which salivation cannot take place. Dr. Cooper mentions such an instance; hence the French who are afraid of giving merc., put children affected with venereal disease, to the breasts of women under salivation — But this is no proof for the whole is effected by the halitus of the mother, which acts topically, & produces salivation in the child — I have myself been salivated merely by the halitus of a person in a close room.

Caldani, who has written the best system of Physiology of the age (but it is not translated) relates the following case.. a nobleman, who had taken a great deal of mercury, internally only, was severely salivated – after some time a hard tubercle appeared on his left cheek, which was treated by several applications among which was a mercurial plaister. -- Caldani removed the tumour, & in the center of it, he found a globule of mercury, not a very small one, it was – this did not surprise him so much, as he had already been convinced that mercury is sometimes absorbed. —

Dr Hamilton discovered by slow evaporation globules of mercury in the milk of a woman, who had been long under a mercurial course – they children are often salivated by sucking a woman who is under a salivation – this however may be from the habit –

Doct. Walmsley's experiments to prove that generally mercury is not absorbed, but when the system is much weakened, the absorbents take on a new action & absorb the various substances —

On the whole, I cannot deny that provided a mercurial course be continued for a length of time, either internally or externally it is actually absorbed either thro' the lymphatics, or veins. —

By numerous experiments, I found that some vegetables take up iron mercury &c very readily. & in others instances, that they would not for a length of time, but at last would do it, & continue to do it some time. as in a mulberry branch, after a long trial, it's twigs at last filled with iron.

Perhaps Chemical tests may not be sufficiently exact to detect these substances, when enveloped in animal matter, or in Chyle, blood &c — We know they are not perfect, for Fontana found the poison of (viper's) a Rattlesnake gum Arabic to be the same thing, as far as Chemical analysis would show. — And M^r Berthollet not being able to detect mercury in a Quack med. which cured Syphilis, enveloped mercury in the gums & mucilages, & tho' these mixtures would cure Syphilis, yet no chemic test would discover the mercury.

Nov. 22.^d Doct. Barton –

We have only spoken on the opinions of different Physiologists, regarding the part on which mercury acts. The next subject is the much agi-tated question how it acts, & how it cures Syphilis. I need not say that this is an extremely difficult & obscure point, & I shall merely give the out-lines of the various opinions of authors on the subject – When it was first introduced into the practice of Physic by the Arabians & Chemical physicians, they gave it, it appears, merely for the great & universal evacuations it produced, saying that the corrupted matter morbid particles flowed out from the system by these discharges; they of course did vast mischief, their axiom being "kill or cure." as to its comparatively mild effect on the salivary glands & on the arterial system, they did not regard it at all, but attended only to its violent evacuating effects – but it was soon found that it would cure the disease without producing such profuse discharges; it was then supposed necessary to excite only the salivary discharge, & that the cure was effected by this; Dr. Cullen maintains

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That it is not by the evacuation is proved because the evac.^n is not necessary to the cure – 2. the evac.^n is so small that cannot be supposed to have any effect in carrying off vir. 3.^d Evacuations produced by other medicines are not sufficient to cure. –

this, ~~but~~ this theory is not satisfactory, but holds out the supposition of a specific action, which ought to be kept aside as much as possible — It now appears to be the generally received opinion, that salivation is not necessary, if we can only keep up the relaxe effects of the mercury on the system generally, the increased arterial action, headache, &c, which are generally indicated by the sore mouth — Still I believe it is not safe in Syphilis to trust to the removal of the symptoms without producing the salivary discharge; tho' this discharge does not cure the disease, but only indicates the effects of the mercury; for more powerful evacuants do not cure. Hence I conclude that Dr Cullens Theory must be laid aside & we must seek ~~for~~ one more satisfactory —

the chemical doctrine — Possibly it has the power of neutralizing the virus of Syphilis: Dr Cullen considers this opinion as futile; & relates the experiment made by a certain Physician to prove it — he took a portion of the active virus of a Chancre & mixed it with

* probably, say Dr B. Dr Harrison, who is mentioned below —

* D.r B. says this is not an oxyd, but a finely triturated mercury, or mercy in fine state of division

the gummous oxyd* of Mercury, & applied the mixture to the urethra — the poison did not take; but D.r Cullen says it was enveloped in the gummous substance & prevented from acting on the urethra — but more satisfactory experiments show, that it does act as an antidote, & I shall not abandon this theory till an equal number of equally respectable experiments have shown it to be false. — D.r James Gouge ~~x~~ in an inaugural thesis in this university among other experiments, states the following; I inoculated M.r x x my fellow-student with syphilitic virus, which produced in 4 days a complete Chancre. — this proved the matter to be ~~infectious~~ pure & strong — I then mixed some of the same with Calomel, & inoculated his other arm, & no inflammation followed — these experiments, being made on the same person, show that the Calomel prevented the syph. virus ~~mercury~~ from acting — I next tried the small pox matter, mixing it with Calomel, I inoculated a girl of 18 years, with it, but the Calomel did not prevent the effects of the variolous matter — (It is said that Camphor

does Inspection & allied to camphor &c

will prevent the smallpox matter from infecting) —
I inoculated myself with some matter, which
had produced a Chancre in another person, but
being mixed with Calomel, produced none in me.
In order to see whether the gummous matter
did prevent the action in the case spoken of by Dr. Hall
I mixed the mercurial matter with gum arabic,
but this did not prevent its taking" These
Experiments go a great way to convince me
of the truth of the theory, that mercury acts as an
antidote to the venereal virus — Dr. Harrison's exper-
iments tend to prove the same thing — Notwith-
standing these experiments, there are two objec-
tions against the Chemical theory — 1st. it
supposes, that the mercury is taken into the
Circulation; but it has not been proved that mercury taken into the Stomach
is carried thence into the circulation; tho'
I am well convinced that it is sometimes
absorbed. but 2d. Even admitting that the blood
is saturated, as they say, with mercury; now the
virus & mercury are together in the circulation:
but however long they remain together,

recently Dr Swediaur

the disease is not cured till salivation is pro-
-duced, or in the absence of salivation, the febris
mercurialis or salivatoria appears:- I had some hesitation
in admitting that it could be cured radically
without salivation; but if it is, the peculiar
mercurial irritation must exist.- The pulse
may not indicate it, any more than it does the
irritation in the bladder caused by the uva ursi-
Another objection presents itself;- other diseases,
which mercury will not cure, are produced by
peculiar poison; as rubbers - yaws - disp. produced by Rheum & also mercury cures some,
in which no virus exists - as some of neuroses - & some of febrile -
The Mechanical theory will not detain us
long, but deserves to be mentioned, as it was
supported by some of the greatest men, that
have adorned our profession, Stahl, Hoffman,
Boerhaave &c.- they supposed mercury to
act only by its globular form & ponderosity specific gravity - Dr. Barry
a supporter of this doctrine, whose works, tho
contain much useful matter with a
great deal of nonsense & deserve your perusal,
maintains, that the particles of mercury
go into every corner, opening obstructions &c.
according to him, if any other substance can be
found heavier & equally divisible or slippery diffusible, it will be more certainly efficacious -

1814.
A modification of the Chemical theory is that which supposes the effect of merc: to be produced by the oxygen contained in it; this was supported by Dr Garnet & Girtanner, & also by Dr Rush in his last lectures. I deem it very erroneous, for several reasons; a 1. if it salivated by the oxygen, oxygen gas alone ought always to salivate now it is found that unless prepared from the oxyds of mercury, it will not; thus that from manganese never does it - 2. If it did, who would imagine that the small quantity of oxygen taken could do it; x grs calomel will bring on swelling of gums & flow of saliva - the Hydrargyrus cum Creta, or blue pill by analysis, is found to yield as a maximum 1½ grain of oxygen & as a medium only ¼ gr. for the 100 grs of the pill - now =

= 6 or 8 grains of this preparation will begin to affect the gums &c. — so small a quantity of oxygen could hardly have any effect. — Mercury besides is not the only med. which salivates — Conium, Camphor, polyg. Seneka &c.

In Scorbutus, there exists a sponginess of the gums & fœtor of breath very similar to the disease of Ptyalism — this might be attributed to oxygen — but we find that these symptoms are cured by introducing oxygen into the system —

Mr. Hunter's theory is far more Physiological; he supposes the mercury to act by inducing a new action; supposing the ven. virus to produce a peculiar irritation, & the mercury to counteract this by a still stronger one — but Mr. Adams in his work on morbid poisons has explained & supported this doctrine much more ingeniously ~~better~~ than Mr. H. himself — Mr. Barthez of Montpellier published this opinion 8 years before Mr. H.; & if it be said that Mr. H. taught it long before, I will add that Mr. B. published his work as he was retiring from his Chair of Professor, & probably had long taught it — My objection to it is, that no other medicine constantly produces a cure, tho' hundreds of others produce nearly the same irritation, as far as we can judge from the symptoms —

After this very cursory survey of the different opinions, I must confess, that I have not made up my mind, & that I am vacillating between Mr. H.'s & the Chemical one — Mr. H.'s is certainly the most beautiful; as to the mechanical, no one will now defend it.

Something must now be said on the time of life, at which ~~when~~ persons are liable to the action ~~[illegible]~~ of mercury.

We see that Children under the age of 2 years are not capable of salivation, tho' some advise salivation, which seems ridiculous, in hydrocephalus even at 1 year of age. This is a general rule, but now & then we meet with Children who are salivated under the age of 2 or even 1 year. I myself have administered mercury with Camphor to a child 11 months old, for a scrophulous swelling, & a profuse discharge from the salivary glands, tho' unattended with any soreness of the mouth, or factor discharge from the nose. It sometimes acts on the nose, & at present I have a child 10 months old under my care, who is recovering from hydrocephalus internus, by a profuse discharge from the nose induced by mercury. (a salivation of the nose, if expression allowed). It is probable that persons are liable to salivation till death; tho' I have given it to very old people, I never saw one, whom I could not salivate, if they were generally healthy. — D. Woodhouse told me, that he always found it very easy to salivate old ladies in St Widow's hospital in Arch Street, (where none are admitted before the age of 60.) even when not a vestige of teeth remained. — Some are liable to the action of mercury at one time & not at another.

I once salivated a young man with great facility for the venereal disease, after which he went to the W. Indies, & returned in 5 months; in subsequent venereal affections, I have never been able to salivate him, & he is still suffering the inconveniency resulting from it— I mentioned above, (*) Mr. Wescot,* who could not be salivated by any other means, but by using mercury as an errhine— Small Changes in the atmosphere seem to influence the liability of some to the action of Mercury—

* See Nov. 17th last page but 2.

* Epilepsy

Another question arises; does Mercury salivate by its own power, or by its union with oxygen— Dr. Rush mentioned the latter opinion, not because he believed it, but thro' complaisance for a friend; it originated in the French Philosophers, who after 5 or 6 experiments, published 5 or 6 volumes to prove it— My objection to this futile opinion is, that we devour oxygen at every moment: in sugar, almost every other nutritious substance— Chaptal mentions that oxygen salivates, but he is candid enough to say that it was obtained from the oxyds of mercury & not from the oxyd of manganese— also the mercurial

pill in 100 grs contains about 3/4 of a grain of oxygen, & 50 grs of the pill will salivate; ~~it~~ it is not to be supposed that the effect can be produced by 3/8 of a grain of oxygen —

The Diseases, in which mercurials are proper, are so numerous, that a catalogue would be tedious, & the subject will be mentioned under each particular disease; we will therefore omit it here, & proceed to mention a few, where they are ~~are~~ improper. — In acute fevers, before the system is reduced by evacuants — in all inflammatory diseases Phthysis & — in haemorrhage with increased arterial action — Malignant dysentery with morbid action of blood vessels — in this they must not be used on any account — for I have seen fatal hemorrhage — in Scurvy ~~its~~ their injurious effects are acknowledged; 400 fine German troops died of the salivation produced in this disease by mercury — In the 1st. Stage of febrile Dropsy — —

The Catalogue of salivating medicines; for occasionally other medicines besides mercury salivate; we speak now of the internal ones — of the Veget: various narcotics; the Conium maculatum often — the Hyoscyamus & Stramonium less frequently, solanum ÷ Digitalis next to Con. mac. in frequency. Nicotiana, Opium+ — Squills, Camphor, Ipecac. ℞ Of the minerals, preparations of copper, particularly the ammoniaret — Arsenic — lead, white lead. Antimonials, as James' Powder

+ Opium does it less frequently than any other narcotic.
℞ Zanthoxylum
+ Polyg. Senega

and tart emetic – Gold – Nitric acid[x] – of the animal, certain fish in the Mediterranean, from feeding on certain food (for the same fish in other seas do not) 1500 of Admiral Hawke's ~~troops~~ men were sick at the same time with the salivation produced by this cause – Lizards – of the miscellaneous – pas=sions of the mind – ~~or~~ the sight of food brings on a flow of saliva – Disagreeable sounds. &c &c – ~~weak in the ear, produced a very distressing~~ salivation –

x I think very seldom –

16 Lecture by Dr. B.S.B.

This subject continued in Vol 2d.

Edward Barton's London. November 19th 1814.

10 Lect. by Dr. P.S.D.

adheres at the pupil; 2°. when the Cornea is opaque immediately before the pupil; in these two cases an artificial pupil may be made, & 3°. when the lens is opaque, forming a Cataract –
(Dr. D. here related the case of Dr. Coxe's son, taken from the Medical Museum.)

Feb. 20th: the lens now, upon examination, has lost its opacity opposite the pupil, but the milkiness continues near the circumference of the lens — he can distinguish objects accurately except when placed diagonally to the eye, when the rays of light consequently fall on the opaque part — I can also distinguish the little figure of myself at the bottom of the eye, when looking into it & vision daily appears to improve — the slight irregularity of the iris is the only perceptible defect, & that is evident only on close examination — this wonderful recovery from blindness, after 4 months complete privation of sight, affords a proof of the salutary effects of the animal economy, when aided by youth & good constitution — Jno. Redman Coxe —

Philadelphia. Feb. 20th. 1806. —

fiery sparks before the eyes Aug. 1st eye moderately inflamed. slight opacity of cryst. lens is evident - in order to check his spirits, which render him unmanageable, gave him 1/8 gr. Emet. tartar, to nauseate him, also more resin of Jalap. In evening as spark continued, V.S ℥xv - an enema; large blister to back of neck - rested tolerably & complained but little of sparks; has had one or two good evacuations - Aug. 2d. again V.S ℥xi & slept greatest part of the day. blood has never appeared sizy - in afternoon 4 grs Res. Jal. which operated once. a piece of watermelon which he eat sickened him & caused him to vomit - Slept till 3 AM. of the 3d. - Eye looks favourable & iris appears more regular. opacity of crystal. continues, but external inflam. almost all gone - 4th - eye looks well & objects perceptible - all yest. afternoon & last night saw appearance of hay & straw, & letters quite red, & as big as a bedpost. no pain & no effusion of blood to account for this red appearance This appearance as well as sparks he continued to see for several days, when they subsided. 5th. all inflam. gone, but milkiness of cryst. lens continues, tho' he distinguishes objects completely - 7th - opacity augmented - now obliged to look askance to distinguish objects - blister to neck & 5 grs Calomel to salivate - 8th. 4 or 5 stools, eye same - ord. tart emet every hour in nauseat. doses. 9th. Could not induce him to take med. & conduct or breathe - opacity augments & vision greatly impaired. 3 grs Cal. & blister behind right ear - lowest diet. toast water, & strict confinement in dark room - blisters kept open with Cantharides; 10th. 3 grs Cal. & afterwd. 4 grs Res. Jal. - 12th. Mouth sore. spits considerably, but no operation in opacity - as but little hopes, on the 13th. concluded to heal up blisters & omit further attempts - eye apparently insensible to light, & cannot distinguish objects - the pupil by exposure to light contracts readily - One import. deduction is, examine eye as speedily as possible -

pass up a small pair of forceps to extricate the tinsel — tho' an injury to the iris was anticipated by its edges, after the evac.ⁿ of the aqueous humour, this was a trifling consideration com=pared to the chance of violent inflam. & suppur. by longer delay. At 1½ O'C. 20 hours after the accident, Dr. P performed the operation, the eye being fixed with a speculum — After the incision of about the 4th of the Cornea, the aqueous humour was largely evacuated but the forceps from their confinement, could not take hold of the tinsel — A silver Curette was introduced, & at the 2ⁿᵈ attempt, the it was dislodged, & brought down to the opening — after a short pause with the lids closed, the tinsel escaped on globe of eye, & proved to be nearly ¼ inch in length — the eye now bound up, & hands secured; (having taken 30 gtt Laud. at 2 doses before operation) he soon fell asleep — After the escape of the aq. hum. he complained of great pain in head, probably from the tinsel coming more in contact with iris or lens — this pain not permanent — he had little appe=tite — at 4, however he eat some melon, but vomited immed. probably owing to laud. — he complain of but little pain & soon went to sleep again — the iris was slightly injured by the tinsel in coming away; but probably less, than it would have been by any other mode —
he slept abᵗ. 5 hours, & also considerably during the night — at 4. AM. of 29th, as he was restless & skin hot, VS ℥x. after which he slept again, passed much water, but had no stool to day — diet, bread & water — no pain — he took in afternoon 6 grs Calomel — tossed about considerably in his sleep, more from heat of the weather & confinement, than from fever — Complains that light hurts him even in dark room — 30th: Same — no stool since operation, restless — VS ℥xi — & 3 grs. Resin of Jalap. Eye sensible to light —
31st: Slept consid. no pain; bowels not moved. on examination, eye found less inflamed than expected — Sees every object distinctly. extremely restless, owing to activity of his disposition; Slept from 3 till 11. P.M. when he had an opening — very restless during the night & complained of

Case from Coxe's Med. museum (Philad) — Vol 2^d page 310 —

July 27th 1805. — Jno Redman Coxe, my eldest son,

aged 6½ years, playing in the afternoon with a whip, he had made of tinsel cord, struck himself with it in the right eye & immediately complained of great pain: he would not open it, to have it examined, & I merely desired him to bathe it in cold water — after complaining nearly an hour, he fell asleep on the parlour floor for ½ hour. he awoke with a diminution of pain, but still could not open his eye. he slept well & rose next day with little pain, yet still kept the eyelid closed, tho' he was now able to have it examined. the inflam was apparently small but on a closer view I perceived a portion ~~[illegible]~~ of the tinsel cord adhering firmly by one extremity to the inside of the transparent cornea & passing directly across the anterior, thro' the pupil, to the posterior chamber — the wound of the cornea was very perceptible but no vestige of the cord appeared externally. An obscure milkiness was already apparent on the crystalline or its capsule — I immediately requested the attendance of Dr. Physick; no doubt could be entertained as to the necessity of removing the extraneous body — the only question was how to effect this; it was proposed to introduce a couching needle & endeavour to extricate it from the cornea, when falling to the bottom of ant. chamb. it was presumed that an incision of the cornea would allow it to be extracted — but the uncertainty of success, with certainty of letting out the aqueous humour & danger of injuring iris, prevented this plan being adopted — It was ultimately agreed to make a small incision of the cornea & to

the adnata is pierced) the antiphlogistic means should be employed, general bleeding, purging & leaches, cupping, blisters (Dr. P. prefers these to all others) & ice— In some instances the ball of the eye is injured, as happened to a boy, who, when splitting a pen, ran the knife into the globe of the eye. another instance occurred in a girl, in whose hands a cider bottle burst, & pieces of glass penetrated her eye.— it is also a common accident, for sand, or metal to pierce the eye; & in sometimes the injury is not only external, but the foreign substance pene=trates the globe of the eye— When the inner parts of the eye are injured, vision is destroyed or greatly impaired; the iris sometimes con=tracts so as to obliterate the pupil, & sometimes the pupil is drawn to one side* — these wounds are all to be treated in the same way. the antiphlogistic remedies, as above— the best Collyrium (in all ophthalmies from whatever cause) is an infusion of a teaspoonfull of the pith of Sassafras, in a half pint of warm water— the eye should be closed, & the patient kept in a dark room. by these means, permanent misfortunes may be avoided. Surgical operations (of which hereafter) will remedy the effects of these accidents in 3 cases; 1st. where the iris

* the iris sometimes also adheres to the lens, & this becomes opaque.

direction towards the knee joint. The pain was so great, that an anodyne was given him a night. next morning he complained of a very severe pain in the head, from the forehead to the occiput; saying, that his head would burst. also a tight as he termed it, a sickish pain in the epigastrium. The wound was laid open, & he instantly exclaimed that all his pain had gone to the wound. the wound healed kindly.

When punctures happen in warm weather, it is necessary to prevent their (*healing too soon,) by stimulating applications or by dilating the orifice; this may often prevent tetanus. (Nourishing diet &c.)

* I must have misunderstood him.

We have now considered wounds in general, & will proceed to the particular ones, beginning with incised wounds of the palpebræ. Adhesive straps are generally sufficient, but sometimes sutures are necessary: if so, care should be taken not to pierce the adnata, for the ligature would then rub against the ball of the eye & produce very great inflammation; therefore the ligature should pass thro' the skin & cellular substance only. If the eye be inflamed, (as is always the case, when

Nov. 1st. Doct. Dorsey — Of Punctured wounds. —

Punctured wounds have but a small external opening but extend deep — Probes should be avoided; unless some extraneous body has been driven into the wound — If incision is necessary to extract this, it should be made immediately, or should be delayed till suppuration has taken place. this is a better mode than the use of forceps. ~~In dilatation~~ If matter collects at a distance from the external opening, it will be necessary to dilate the orifice with a scalpel ~~with~~ a director — Sometimes it is necessary to make this incision before the dressing, as when a large vessel is injured & the hemorrhage cannot be stopped. Also when the Constitution suffers much; as in a woman, who run a needle into her thumb, Convulsions came on ~~so~~ so violent that it required several assistants to hold her: a probe was introduced & the opening enlarged with a scalpel, & the Convulsions immediately ceased. — in the year 1795. a young lad fell from a fence & a nail ran into the upper part of the leg in a

Sticking plaisters are generally sufficient, if
the position of the limb be also attended to; they
are to be preferred to ligatures, because these
are painful, & make punctured wounds, & (keep up a constant irritation,)
never fail to occasion suppuration. but ligatures
are sometimes indispensable; as when a pro-
jecting part is cut off. the ear, the tongue &c
also in wounds of the peritoneum, scrotum,
& some of the Scalp. of the numerous ligatures
only two are to be retained, the interrupted &
twisted ligature, which will be described hereafter.

Of Contused wounds. these are produced
by blunt instruments, & besides the simple
solution of continuity, there is a injury of
the adjacent flesh. the hemorrhage is small,
& the reasons have already been assigned. When the
wounds are extensive, the constitution suffers, before
inflam. comes on. in this Case, opium, bark,
(& nauseating doses,) & a poultice, to be continued till the
dead parts separate, & suppuration & granulations appear.
if inflam. go pretty high, the antiphlogistic treatment.
this is more safe in winter than in summer. if
the adjacent parts become gangrenous, opium, bark &c
when by these means, the surface is changed into a
granulating one, approximate the sides by adhes. straps.

Nov. 19th Doct. Dorsey detailed the common opinions
on the Spontaneous stoppage of hemorrhage &c &c —

See Dorsey's Elements ×××××××××××××××××××××××××××××××××××

The hamorrhage being stopped, the next thing to
be attended to, is to replace & retain the sides of the
wound in Contact — for this purpose bandages,
adhesive plaisters & ligatures are used; in most
cases the adhes. plaisters are amply sufficient, must be
applied in strips across the wound (in strips), about ¼
inch distant from eachother, so that blood, serum
or pus may have an outlet, otherwise they may
separate the sides of the wound, and form an abscess; —
for the same reason the depending part of the wound
should be left open — Union will take place in
48 hours or at furthest in 72. — if there is much
inflam. bloodletting, & abstemious diet &c — but
if there is a great prostration of strength & no
inflam. — the Contrary treatment, that is, opium,
bark, wine & nourishing diet — there are some
exceptions to the rule to place the sides in con-
tact; as incised wounds made by glass; because
there are usually small pieces of glass, which
must be brought away by allowing a free
Suppuration —

Sometimes it is so situated that it is impossible
to take it up, as in the back part of the fauces,
in this case generally dry lint or sponge
sprinkled with powder of agaric &c will
stop the bleeding, but if all fail, the old & justly
exploded use of the hot iron &c — When the
bleeding is stopped, the lips of the wound are
to be laid together accurately & retained

vessels may be compressed; in cases where
there are two bones, the arteries lying between
them are not affected by the tourniquet. On the
thigh a compress bandage should be applied
before the tourniquet, so that the compress be
immediately over the artery. The Wound
must now be cleared of blood, & the orifices
of the bleeding vessels can often be seen these
must be taken up by the tenaculum & tied.
both extremities of a divided vessel must be
tied, otherwise, by means of the anastomosis,
the lower extremity will bleed. The tenaculum
should always be used if possible, but if not
the needle. The wound is sometimes so
high as not to allow the use of the tourniquet.
& the finger must compress the artery. It should
be recollected that the artery of the superior
extremity may be compressed over the 1st rib,
& that of the inferior, as it passes out of the abdomen.
Sometimes the orifice cannot be discovered
without enlarging the wound, which
must be immediately done. Dr Physick
in his 1st operation of lithotomy cut the int. pudic
& took it up, as described in Dorsey's Surgery. Vol 2d p 157.

called to a person, whose arm had been ground off by a mill; & it did not bleed sufficiently to soil his linen — the explanation of this circumstance appears easy. in the ~~st~~ incised wds. the vessels are not injured beyond the ~~place~~ surface of the wound, & of course will pour out blood, till fainting, or the contraction of the vessel & coagulation prevent it; but in the Contused, the vessels are injured to some extent; besides this, blood is effused & assists by pressure in stopping the flood. a familiar instance of this takes place in thrombus in venesection — besides these reasons, the extremities of the vessel are killed; & the blood is stimulated to coag=ulation by the dead parts. —

Of Incised Wounds. the first indica=tion is to prevent the loss of blood — in every case temporary stoppage by pressure must be had recourse to, to gain time — hence the use of the tourniquet — in the wounds of the arm the tourniquet must be applied above the elbow, & in the thigh, above the knee, for here there is but one bone & all the

When inflammation attends, the antiphlogistic treatment. - blisters in the early stage, but in the later, are improper - Dupuytr, Boyer, S. Cooper, Crowther and Ford are the best authors &c. The Remedies must be continued several months after the disease disappears, or it will return. In the chronic state, ipecac may be useful -

Wounds. A wound is a recent solution of the continuity of a part, or a breach of the soft parts communicating externally - it is always the consequence of mechanical violence - Wounds differ according to their extent & according to the instruments inflicting them - hence divided into incised & contused - the incised is made by a sharp cutting instrument & is simple - the contused, the parts are bruised; & under this head are lacerated, punctured & gun-shot wounds. Every wound is attended by an effusion of blood; there is more in the incised than in the contused; for this rather prevents the flow of blood - thus the upper extremity being pulled off from the body at the shoulder, the artery will not bleed. Dr. P. was once

the limb appears longer, because the patient resting upon the other limb, the pelvis is twisted — the limb decays, matter is perceived, the skin becomes tense & abscess points — Sometimes the thigh is dislocated from the acetabulum & the limb from being longer, is suddenly become shorter — Sometimes one or more orifices — hectic fever comes on — motion causes great pain & the patient lingers sometimes one or two years, & dies — — Sometimes terminates more favourably by anchylosis of the joint — (sometimes the acetabulum is absorbed & the head of the femur is pushed into the pelvis.)
Unfortunately we are not called till the advanced stage — The Remedies for Scrofula are then useless. Blisters Issues are of no avail: Dr Physick has succeeded best by active purging — Jalap & Crem. tart every day at first, & afterwards every other day. This has effected cures — Absolute rest & vegetable diet are necessary. In children motion can only be prevented by Curved splints for the hip — + After suppuration has taken place, open the sinuses, until the bone comes out —

when the disease has not advanced very far; but when matter is formed & pieces of bone are discharged, the remedy is very doubtful. Some of the most interesting functions are called into action to support the body, when the bone is absorbed. The cartilages are removed by absorption from the articulations of the oblique processes & an anchylosis is formed between them, & there is thus a firm support for the body. We cannot explain how this takes place; it is said that the inflam. causes it; but the inflam. also existed much near the articulation of the ribs with the transverse processes, yet no anchylosis takes place here. All that can be said is, that it is by what Mr Hunter calls the Stimulus of necessity. It affords an excellent example of the vis medicatrix.

Morbus Coxarius - or hip disease. This is one of the most distressing diseases we meet with. It attacks every age, but more frequently children. It is very insidious in its commencement, after it has existed sometime, lameness, loss of appetite, disinclination to exercise, great pain in the knee, some pain in the hip (tho' less);

Nov 18th Doct Dorsey — Psoas contin: & caries of vertebræ

th Psoas abscess is often complicated with a curvature
of th spine; which occurs first & is cause of th
other is doubtful; perhaps both cases may occur —
at all events I have seen caries vertebrarum with-
-out abscess & abscess without caries &c — most of
th symptoms of lumbar abscess occur also in th
curvature of th Spine — this last exists in
either th cervical, dorsal or lumbar vertebræ;
it is known th right distance of two spinous proc:s
from each other, in consequence of th absorp-
-tion of th body — It was long considered as incu-
-rable, until M.r Pott introduced th use of
issues — Whenever the disease is ascertained,
th cathartic system should be followed, & th
issues applied — Spread a circular piece of adhesive
plaister ab.t 1 inch in diameter, & cover it with a
a paste of hum. caustic 1/3 & quicklime 2/3 with soap —
this to be secured by with other sticking plaisters —
let it remain for three quarters of an hour, or
an hour (or at most) & an eschar will be found,
[illegible] it &c — these issues must be kept
open some time after th symptoms have
disappeared — this mode will generally cure

is a symptom of inflam; but most probably he did not express himself accurately; perhaps only a sense of weight or tension — the tumour dimi=nished when he was lying down; but fluctuation was perceived by pressing on the belly, (this always distinguishes this dis. from hernia, unless they coexist.) the tumour was increased by coughing; a slight curvature & projection of 2 spin proc. of the lumbar vertebrae — he said he had had no febrile disease for many years — it was opened as Mr Abernethy directs, & a quart of curdly or flaky matter was discharged; not judging it prudent to discharge it all at once, the orifice was closed, & in 4 hours after another quart was evacuated — the aperture was then closed with adhes. plaister, & the patient laid in bed on his back with his thighs raised. the next afternoon, lassitude; this followed by fever, delirium &c — ××× in yet other case the aperture became fistulous × ×× —

Air has no irritant effect on the natural cavity; but it has on the cavity of an abscess; not indeed directly, for air is not an irritant, but by bringing on the putrefactive fermentation, by which the pus becomes acrid & irritating.

And M^r. Abernethy on this principle advises the immediate closure of the orifice; ~~supposing the air to be the cause of the inflammation~~ he proposes ma=king a valvular opening, so as to ~~[illegible]~~ render the union by 1^st. intent certain; he forbids the introduction of probes, as these by bruising the lips, would prevent union by 1^st. intention — After thus making 2 or 3 evacuations of the matter, the abscess will be found to be so diminished as to render a free incision perfectly safe, & the abscess will thus be reduced to a common sup=purating surface — D^r. Physick has tried this repeatedly, but unfortunately the disease has always been accompanied by carious vertebra, & thus would not yield; but he has found it very successful in abscesses on the thighs —

But in some cases, the puncture will not unite by the 1^st. intention. I shall relate a case of this kind to you to show the progress of the symptoms. A man 27 years old applied to D^r. P. for a tumour on the upper part of the thigh, supposed to be a rupture — he had felt a burning sensation for 2 years in the part, & tumour appeared 9 months ago & had gradually increased — had experienced no pain, or other inconvenience than a heat: this

perhaps not correct

it, tho' very rarely, has eroded the coats of arteries, occasioning a fatal hæmorrhage; this must be very rare, for the absorbents are very inactive in this disease — it is generally accompanied with Carious vertebræ; they it may be mistaken for a bubo, or a fistula in ano — It is sometimes complicated with hernia, & always frequently difficult to be distinguished from it —

Treatment — in the first stages, endeavour to prevent suppuration; for this purpose, low diet, bloodletting if any febrile action exists, cathartics &c. vest. blistering &c — if these are unsuccessful, issues on each side may be applied — but if suppuration has taken place, it is a question whether it ought to be opened or not — Some recommend opening for fear it should open into the abdomen &c — object to opening, because hectic fever is the consequence if they are allowed to open of their own accord, the same consequences will follow, but perhaps the patient's life may be lengthened —

Mr. Hunter first explained the reason of this fever, to be an imperfection of the cavity &c — the inflammation of the whole surface of the abscess —

Psoas abscess, seated in th cell. memb. surrounding th psoas muscles, sometimes, tho' not always, arise witht. previous inflammation. Any of th causes of inflam. may produce this disease; blows, bruises, cold &c. In th commencement th pain in th loins is very severe; tho' sometimes they pass thro' th whole course witht. any pain. Th thigh of th a side is generally weak & a dull pain is occasionally felt in it, th motion of th thigh is not easy, & th patient does not stand erect, but bends forward to relax th muscles. After this, rigors make their appearance & suppu-ration commences, tho' it proceeds very slowly. At length th matter makes its way from th belly to th external surface; th integuments over th matter are not however discoloured, or painful. Th tumour is most tense when th patient is standing. When in a recumbent posture, th tumour is soft, tho' by pressing on th abdomen, pushes th matter to th thigh & fluctuation is perceived.* Th matter is sometimes in very large quantities. I once evacuated 2 quarts, & th attendt. said, that after I had left th patient, more than a gallon more was discharged.

* generally point under poupart's ligament, tho' sometimes much lower down th thigh; sometimes point near th anus & appear like fistula in ano.

thus Mr Hunter makes it appear that these abscesses differ from those preceded by inflam: both in Cause & in the matter secreted — Since they are so dissimilar in these respects how are they with regard to the steps towards a cure? In both the first step is the evacuation of the matter — the second is granulation, & the 3d Cicatrization — for the first there are two modes; absorption, as frequently happens in scrophulous collections, when the parts creep as it were into a healthy situation this very rarely happens when there is true pus — the 2d mode of evacuating the matter is by ulceration — the ulceration in abscesses from inflam: is very rapid, but in them it is very slow; sometimes months & even years do they do not point, but approach the skin with a broad surface — thus Mr H. concludes they differ &c in cause, in the quality of the matter, & in the mode of cure — We must therefore admit the distinction between these abscesses the consequence of inflamation.

in it by the adhes. inflam. the last is when
the matter falls into a part distinct from
that in which it was formed — in collections
of this kind, the surrounding parts are soft and not
thickened; the matter does not point, but a large
surface approaches the skin at once — they are
always larger, than inflam. would produce,
because they spread so much — they are all
similar in these respects — Cancer, tho it
produces a secretion, does not however form
true pus until it is exposed, when it becomes
inflamed & pus is formed; scrofulous
sores like cancers heal are very reluctantly —
the matter secreted is different from that
formed by inflamed surfaces; it is a curdly
substance (probably the coagulum) with a
flaky matter, a thin pus (we call it so for
want of another name) intermixed with
flakes — this appearance is never seen in pus
from inflammation. that suppuration
is the consequence of inflam. is proved, by there
abscesses secreting good pus after being opened & inflamed.

Nov. 16th Lect. Surgy — of Collections of matter without previous inflammation —

Mr Hunter says scrofulous sores are of this kind; & often according to him it is not a true suppuration, for it is not (as properly speaking, but one Calls it so for want of another term — Many indolent tumours, diseased thickenings with[out] inflam[mation], white swellings, lumbar abscesses, hip diseases, & tubercles in the lungs are of this species, & the matter collects in these cases without any visible inflammation — They Come on without any pain, and the thickening is the 1st Symptom, whereas those proceeding from inflam[mation] always Commence with pain — these collections, tho' they approach the skin, do it however very differently from the abscesses after inflam[mation] — for they do not readily produce the ulcerative process, & there being no adhes[ions] inflam[matory] to form a cyst, they spread & change positions — hence the difference between an abscess of a part & an abscess in a part — the first is formed in a part & retained

of temperature, as the blacksmith & the washwoman —

Treatment. the 1st Species needs but little assistance — discharge the pus; if inflam continue separate the cuticle, & apply a solution of the sugar of lead — the most sure method of preventing all ~~danger~~ [mischief, if seated deeper], ~~wherever it may be seated~~, is an incision to the bone, & the blood allowed to flow, till it ceases spontaneously. Some dip the finger into boiling [vinegar or] water; if this is of any service, it acts as a vesicatory — If the opening is large enough, a poultice or merely dry lint is all that is requisite — if the bone be carious & loose, it should be removed; but not unless it is detached. — If matter follows the tendon, & points, open & allow it an exit; if it bursts of its own accord, [the opening is too small &] a fungus arises difficult to repress; the most speedy way of remedying this, is to enlarge the opening by incision. After extensive whitlows, the tendons sometimes protrude; these ends it is safer to leave, than to cut off, for they are dead, & you will not expedite the cure, & will give pain to the neighboring parts —

In the instance ~~seated~~ mentioned above of oedema, V.S. &c were all ineffectual, but a blister 1st over one half & then over the other, succeeded perfectly — In another case, where a large indurated tumour remained, with a slow fever, a blister also in 3 weeks compleatly cured it —

Whitlow or Paronychia. from neglect in the commencement, this disease may occasion a great deal of pain, loss of a finger, &c. it is ~~seated~~ usually situated at the end of the finger, & its violence depends upon its seat: this is sometimes in the ~~Skin~~ Cutis vera, & suppuration very soon occurs; another species is seated in the adipose membrane, this is more painful, & the matter is found under the nail — 3d. in the theca of a tendon, or the periosteum; the pain in this species is most excruciating — tho' but little tumefaction× — when it suppurates, the pus sometimes extends under the theca along the hand, & even under the annular ligament up the arm — if in the periosteum, carious bone may be the consequence, & sometimes mortification of the whole hand. —

× the hand & arm are very painful & swell, tho' the part diseased does not swell very much —

It is difficult to assign any causes; I knew it once brought on by the bite of a squirrel — it occurs most frequently in those whose hands are exposed to great changes

at the commencement of the disease V.S. ℥x or xvi.
according to the patient's strength &c; after this
a mercurial purge — low diet — anoint the
breast with warm olive oil. If the patient is not confined
to her bed, the breast must be suspended by a
handkerchief over the neck — If the inflam
is not diminished by one V.S., it should be
repeated & leaches be applied — in many ins-
-tances the bread & milk poultice with lead water
has been applied with benefit — if the inflam do
not quickly subside, a blister must be applied
to discuss it — Many stimulating plaisters —
are recommended, but are of doubtful efficacy;
if they are of any benefit, it must be by
acting as rubefacients — a blister is much
more efficacious, & not so painful & fatiguing
a patient will sometimes sleep during the
operation of a blister, tho' before its application
she could not — — Sal ammon with vinegar
has been commended by Justamond, but Dr. P. has tried it
without benefit — Under proper treatment
suppuration does not often take place; but
if it does, puncture where it points, & poultice.

Inflammation of the integuments sometimes terminates in suppuration, but differs much from the internal suppuration in the duration of inflam before suppuration — I have seen adema the Consequence of inflam in the breast, & there was such a degree of distension, that where the nipple ought to have protruded, there was a deep pit — In other Cases, a secretion of Coagulable lymph takes place; the inflam subsides, & the induration remains; this nothing Cancerous exists, as they are removed by remedies, or cure themselves by suppuration — Whenever treat of Cancers, we shall speak of this more largely.

In some cases after the disease, the gland shrinks below its natural size & becomes incapable of secreting milk. —

The Remote Causes of the mammary abscess are Mechanical violence, as tight dresses &c. exposure to cold; suffering the breasts to be too long distended with milk — but they often occur without any evident Cause. —

Treatment — No disease perhaps is more easily Cured than this, if the physician is Called at the Commencement, but this is seldom the case, & they are only called when suppuration has for most inevitably take place.

Nov. 15. Dr. Dorsey

Mammary abscess. — Nurses generally think themselves fully adequate to the cure of them, & of course a physician is seldom called till the disease is somewhat advanced — The suppuration seldom take place in the whole mamma, but either in its glandular or cellular part — When the gland, the secretion of milk is partially or wholly stopped, & a pain stretching towards the axilla these two symptoms are not present when the affection is confined to the cellular membrane.

The suppuration is sometimes preceded by a chill, but often the first symptom is a dull pain; a hardness, something like a Schirrous tumor, is felt, & can only be distinguished from Schirrus by its sudden appearance. Considerable pain is occasioned by suckling — Women are liable to this disease as long as they give suck, but particularly during the first 3 months after Delivery — The pain is often excruciating, so much so as to surpass even the pains of labour in the patients opinion —

side of the neck; if the head is allowed to recline towards the side of the burn, as it will naturally do, the Cicatrix contracting will draw it down still more & produce an incurable deformity – In the same manner the Chin may adhere to the breast; the leg to the back part of the thigh &c all this might be very easily avoided by keeping the parts in their proper positions by splints &c

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Nov 15th Dr Dorsey observed – An operation will generally remedy in a great measure the deformity occasioned by the parts being carelessly suffered to grow together. This operation has been successfully performed, when the Chin adhered to the breast – Dr P. relates a case, which occurred while he was a Student of W. Hunt, a boy had scalded himself in the genitals – the ~~Scrotum~~ penis adhered to the scrotum, the scrotum to the thighs so that he was, when grown up, deprived of his powers of propagating – Mr H. began incision liberated an inch and half or two inches of the penis to the no small satisfaction of the patient –
As to the effects of Cold, we refer you to the Practical Chair –

I said above burns were dangerous on
the extremities, than on the head or cavity;
except many small joints are injured
as in the hand, (particularly apt to happen
when the back of the hand is burnt) the
ligamentous attachments being dissevered, the muscles draw the bones out of
their places, producing so many dislocations.
The irritation which this causes to the
muscles of the forearm creates great
disorder in the system, sometimes delirium
& in one case, death was the consequence
Now a splint would prevent this entirely
The same applies to the foot. In the case
where death was caused by this, a subsultus
tendinum amounting almost to tetanus,
was the consequence of the irritation, &
death soon followed — this might have
been prevented & indeed in one case I
saw symptoms of this nature stopped by
the splint — The proper position of the limb
is of considerable importance; for if not
regarded, the bad position continues &
increases by the cicatrization — as in the

severe accident, but in burns it is a dangerous Symptom — It is necessary to protect the patient from the cold & keep him comfortable; for as we said before, cold as well as heat, when beyond comfort, is irritating — — It is not always that the Physician is called before several days after the accident & many remedies have been tried — in these cases also, notwithstanding the inflam is much increased, the basil & Spts Tereb. are very successful — the same also suppresses the fungus, which resists most remedies; for this purpose however the black basil or tar ointment is perhaps preferable — In dressing the parts, it is necessary to cover every part the whole wound with the ointment — for if two burnt parts are left in contact, they will grow together; thus, in the hand, if the dressings are not applied between the fingers, these will unite & render a serious operation necessary, or the hand almost useless. When burns take place in the palm of the hand, Splints to keep the fingers extended are absolutely necessary — otherwise the cicatrix will contract & draw the fingers down —

this was of Course Condemned as an application for burns; but it was the improper use of it, that was the cause of it — In cold weather when the basilicon is hard, only add enough Sp^ts Tereb. to make it spread well; & let it not touch the ~~vessel~~ Sound skin — When the basilicon is soft, as it always is in warm weather, there is no need of adding any Sp^ts Tereb. for that in the Basilic. is sufficient, & if two soft, it will ~~spread~~ melt over the surrounding sound Parts —

They say, it injures sound parts; how much more so then to a part deprived of its cuticle & in a state of inflammation*? — but the fact is, that it Cures the disease produced by fire, which only proves that this inflam. differs essentially from the Common kind — It is, upon the whole, I think, the best remedy, that can be used — ~~[illegible]~~ Mr. Kentish relates the case of his apprentice, who was scalded on the thighs, scrotum, penis, & wrists by the bursting of a — it was dressed at 11½ o'clock A.M. with bas. & Sp^ts T. — a glass of hot wall[illegible] Shivering succeeded — 60 gtt. Laud in a bumper of wine were given him — again a rigor, followed by a paroxysm of pain &c — I only mention this to show the manner in which the disease acts on the system — Shivering is produced by any

* but many inflam of the skin are cured by strong stimulating remedies, ask Dr Dexter

Excessive heat excites a very different kind of inflammation from any other — 1st. the pain is different, being of a burning kind, so that the patient thinks there is still fire in the part — 2d. there is no disposition to resolve, & tho it is often very obstinate, & frequently occasions ulcers in the fleshy parts it also throws up a fungus very difficult to repress & accompanied with pus; 3d the cicatrices are extremely apt to contract — 4th the Remedies are very different in this & other inflammations — in this, for instance, vol. alkali is used — hence our object is to induce a change of the kind of inflammation many of the remedies in use are therefore mere palliatives; but notwithstanding the stimulating remedies as the basilicon & St Ferebras these change the action; but care must be taken not to apply them to the sound parts — for they inflame the sound skin very much; I have seen an arm enormously swelled by this application being applied made to the wrist instead of being restricted to the hand. & the discharge became much more serious, than the burn — this was attributed to the spts Turpentine &

in proportion to the injury. the invigo-
=rating remedies should be employed—
Opium, to allay the pain; peruv. bark, &c.
till the injured parts are separated—
but in some cases where the fever is very
high, the antiphlogistic plan is to be followed.
The local remedies in use are very nu-
=merous; pieces of linen dipped in spts of
wine have been much extolled; vinegar
& water— when slight, exposure to the heat
of a fire for a few minutes— Cold water—
Sir James Earle extols ice above every
thing else— when the cuticle is destroyed,
oil, or oil & ~~vol. alkali~~ lime water — the linseed poultice;
& Saturnine ointment; here scraped
potatoes with salt are very much used—
~~vinegar~~ I have now mentioned those in
common use & will give those I think
most deserving of notice— Vinegar, I think
I have seen very useful, particularly in
~~&~~ scalds, where the skin only is inflamed—
it will cure this sometimes in 24 hours—
but I never saw it of any benefit, when
the inflam. had extended into the ~~cell~~ adipose
membrane— of late years very stimulating
applications have been recommend.d by Mr. Kentish—

filled with boiling water: his foot slipped & he fell into it: he was immediately taken out, & but was wet over 2/3 of his body, & the heat was continued by his Clothes, which however were taken off as soon as possible — I found him restless, having no pulse; cold extremity, insensible, tho' he would answer, if spoken to: he constantly answered to no, when asked if he was in pain, or had suffered any. he survived the accident only 6 hours. —

In those burns where the life of the integument is destroyed, there is but little pain; but sometimes they are attended with rigors, hectic fever, and in one instance, I saw tetanus caused by this kind of burn — but when there is but little pain & no bad symptoms at first, when inflammation comes on, it is very apt to cut off the patient unexpectedly — In small burns, only local remedies are necessary — hence the division into general & local remedies — Many recommend indiscriminately the antiphlogistic measures; but the treatment ought to vary with the symptoms; in cases of deep burns, where the fever is not excited

Nov. 12th. Doct Physick. On Burns & Scalds

There are accidents, to which we are very often called; the effect which heat produces is in proportion to its intensity & to the time of its application — the slightest injury is the raising of a blister; next is seen and the 3d. is when the life of a part is destroyed. forming an eschar like that made by caustic — there are varied according to circumstances; 1st. according to the degree of heat; burning coals, melted metals, streams of vapour generally kill the part, to which they are applied — 2d. according to the part affected; the effects are more dangerous when the head cavities are affected, or the head; than in the extremities except a great many small joints are injured as in the hand — burns are more serious in old people, or small Children; also in Dropsical patients, in whom the burnt part are very apt to mortify — 3d. according to the extent of the injury; a burn not extending much superficially tho' deep, is not so dangerous as one that is superficial & of great extent — of the last kind are the effects of gunpowder, boiling water &c — some years ago, a boy, in a soap factory in this city, took it into his head to walk on the edges of a cauldron,

1st. is reddening or inflaming the skin, the 2d. the raising of a blister, & the 3d.

tho' I have seen them applied in many cases, and have heard of a great many more, I never saw or heard of a single failure, where they did not arrest immediately the progress of mortification proceeding from inflammation — they put an immediate stop to the burning sensation (which is compared to a warming pan full of coals on the part), also by the copious secretion of serum, they prevent tumefaction; in a case under my care of mortification in the leg, the limb & whole body was very much swelled; the application of a blister to the diseased part almost immediately lessened the swelling, and gave the greatest relief — I could relate a great variety of cases, but they would only tend to prove an uncontested fact —

in the centre is a dusky red, but paler towards its edges. a hot burning pain a suppuration takes place in the cellular membrane, but no good pus is never secreted. the cellular membrane mortifies * Dr. Hunter says it is most common in aged people & high livers; but I have found it equally so among the poorer class. when they are numerous or large, they are very dangerous; much however depends on the Constitution. the treatment is the same as that from violence of inflammation. Dr. Wistar relates a case, which proves it to arise from some peculiar quality of the inflam- Dr. Munges says he has seen it often in France & calls it the Charbon de Provence. he recommended radiated scarifications & a circular one round it, which was done & succeeded. (the history of the case is omitted)

* Carbuncles are most apt to appear on the back; & are more dangerous on the head; they are more apt to attack persons, who have gouty symptoms only, than those who have a regular gout.

Nov 12th. Dr. Physick added to the last lecture; the remedies for the arresting the progress of mortification being very uncertain, I was induced some years ago to try the effect of thirsty- they succeeded so perfectly in the 1st case, that I repeated them, & am happy to state that I introduced them into practice here & thro' the United States; and

th local remedies - remove all th causes; hence in Erysipelatous, make free openings to evac= =uate th pus, which is th Cause - this might perhaps be recommended also in cases where urine or urind in th Cellular texture is th Cause - th best application is a light poultice; for pressure must be avoided - some say pow= =dered peruv. bark, &c in th poultice - but these are improper before th death of th parts Complete - but when th mortification has stopped, th fermenting poultice with bark & charcoal &c by its antiseptic properties, might prevent th putrefaction of th slough, & also stimulate th absorbents - th nitric acid also is used - The second species from inflammation, proceeds from some peculiar quality of th inflam - independent of its violence - Of this kind is th small pox pustule; which never terminates in any other kind of way than in gangrene. And 2.ds Carbuncle - th inflammation in this is circumscribed & like a pimple, but its base extending widely in th Cellular membrane - th colour

or prepuce & the mark of ye finger is visible some time; this proceeds from ye inaction of ye vessels which do not fill readily — Small vesicles containing serum & afterwards some sloughs — ye neighboring parts become emphysematous, from ye air generated by ye putrefaction of ye dead flesh — a very bad smell attends it —

The treatment in mortification from violence of inflammation — Whatever medicines are taken to increase ye action, increase ye Cause & of course are detrimental — thus Cordials &c are improper before mortification Commences or while it is going on, & should be removed till it has ceased — also scarifications are improper — ye Remedies are general or local — ye general rem. if inflammation Continues, are ye antiphlogistic, tho' to be used with great Caution; and if ye patient is weak, should be avoided entirely, even if inflam be present — pain is to be relieved with opium — (in ye weak stage) nourishing diet, and as much wine as he can bear — ye perus. bark is to be used pretty freely —

more apt to attack the rich, epicures & free drinkers — the only case I ever saw however was in a female —

The common method of treatment is by stimulating balsams &c — with the internal use of the Peruv. bark — Mr. Pott speaks very highly of opium & prefers it much to bark; he gives it in such quantities as to alleviate the pain; & opposes the stimulating balsams &c. Scarifications ought never to be used made — perhaps there is no species of mortification to which Mr. Cheselden's advice is more suited than to this, never to separate the ~~gangrenous~~ mortified part, but to allow it to slough off of its own accord — Amputation never should be performed in such a case, as the wound may put on the same action — long continued pressure sometimes produces inflam & mortification of the part; as of the soft parts over the sacrum by lying long on the back — the symptoms are a burning pain, change of colour from red to blue or purple; the tumefaction subsides; the colour disappears

foot, which was so slight, that it was entirely disregarded — but after 5 or 6 days the pain came on extending up the leg. An old woman being consulted, applied some balsams &c — And on the 12th day a Physick was called; when it had spacelated. The part, which was before very hot, was now Cold; the part round the gangrenous flesh, was dark & livid surrounded by a bright red. — Mr. Pott very accurately discribes this disease; he says it is very different from any other specis in its attack & its progress. in some there is but little pain, tho' a great uneasiness part in the night, then a small discoloured spot on the inside or extremity of one of the toes — the cuticle here separates. — it is sometimes occasioned to cutting the nails, but Mr. Pott thinks without foundation, (here I think he is wrong) — the progress is very various, in some slow, in others rapid & horridly painful — when the attack is on the foot, the upper part of it becomes tumified & the cuticle separates from the whole surface — Much more frequent in males; being about one female to 20 males —

The Remote causes of the 1st. are all circumstances, which increase the inflammation — the state of the system also has an effect — a woman aged 40 years, having a bilious fever; on the 8th. day was much troubled with nausea &c — a sinapism was applied over the whole epigastrium — this whole surface mortified & sloughed off — in Scarlatina I have also seen this happen — Boerhaave relates a case of a paralytic limb, rubbed with volatile liniment, which produced gangrene — injections of wine into the cellular membrane, or wine insinuating itself thereinto at the fistulous openings of the urethra occasion gangrene — thus Dr. Physick saw a bungling operator inject portwine into the cellular texture instead of into the cavity in the cure of hydrocele —

A species of mortification attacks the toes of old people (tho' not exclusive to the old) — a slight inflammation of a dusky red first appears, vesicles soon rise — dark brown spots from the effusion of blood; in some it is slow, in others very rapid & painful — I knew it once occasioned by a scratch of a knife on the

Sound parts bark elixir vitriol were given freely & a poultice applied to the part &c

When a part is exposed to extreme cold, it becomes pale, followed by redness; then purple, & mortification appears. a considerable degree of pain is perceived at first, but if the Cold continues the pain ceases & the part becomes insensible. Sudden application of heat would now produce immediat death of the part. the limb is to be immersed first in snow, then in cold water, which becoming gradually warmer, brings the part back to its proper temperature

Mortification sometimes comes on without any evident Cause; thus I once saw it come on in the leg of a young man recovering from yellow fever, without any known Cause & without inflammation

The second species is preceded by inflammation & is of two kinds; the first proceeding from the violence of inflammation & the other from some other quality of the inflammation independent of its violence

the part is deprived of sensibility, & is at first livid, then purple & at last becomes quite black, with a disgusting smell; vesicles arise containing bloody serum — the only external remedy should be a light poultice a little warm, to be continued till the parts that are mortified, separate from the living — a moderate degree of inflam. after this is healthy, but if it becomes pretty high, evacuations should be used — Opium may be used to relieve the pain throughout the disease — When the system sinks at the first attack, Opium, peruvian bark & wine should be used freely — I will here relate a case, that came under my observation — the femoral artery was secured at the middle of the thigh for popliteal aneurism — the heat ~~was~~ of the limb was diminished, tho' it was not insensible — the 4th day purple spots appeared on the ankle — the 8th. skin became black; 6th. pain extended up the leg; the foot became quite cold. the blackness extended ab.t 2/3 of the distance from the ankle to the knee — the 30th. day the absorbents had separated the dead from the living parts; a circle of inflam. was visible on the edge of the

Nov. 11th. Doct. Dorsey — On Gangrene & mortification

Mortification is the complete & entire death of a part; gangrene is the state immediately preceding it, or the dying state but this distinction is unnecessary in the treatment.

It has been already said, that the state of the system had a great influence on the effects of the remot causes of inflam. thus fever, old age, dropsy &c. in general, debility renders the effect of contusion patient liable to gangrene from the same causes which in a healthy state would produce only the adhesive inflam. thus puncture in anasarca sometimes becomes gangrenous, tho' in a healthy state the same puncture would heal by the 1st intention —

Mortification is of two kinds, one without inflammation the other preceded by inflammation — The causes of the first species are 1st. violent contusions, wherein vessels are so much injured as not to support the part; 2d. the cutting off of the principal artery of a part. these two causes act in the same way by preventing the flow of blood to the part. 3d. intense heat or cold. frequent instances of the last are met with in the Penns. hospital, when they are generally found in blacks —

But whatever be the kind of inflammation, if the pulse indicate it, bleeding should be resorted to. Under the antiphlogistic treatment I never saw mortification take place but in the stimulating, I have—

Besides these kinds – there is a species called the Oedematous – apparently existing in the skin alone, but probably going deeper, the' concealed by the water effused in the cellular texture – occasioned sometimes by distention. Scarifications. The pain is a burning one. Carbuncle and the death of the inflamed part will be spoken of when treating of Mortification—

not indicate gangrene, yet the cellular membrane on opening will be found gangrenous & the pus of an intolerable smell — In this case it is of the greatest consequence to make several apertures for the discharge of this matter, unless the phlyctis is called early enough to prevent the suppuration —

The remote Causes are the same as other inflam — tho' they often come spontaneously the cure is the same also as in other species — In Europe & particularly in London, bleeding is given from the Commencement of the disease to prevent the gangrene & its effects — but I have constantly found the antiphlogistic treatment most successful in the first stages — poultices are not to be applied — flour or meal is a very useful application to the part — Blisters are of the greatest utility — they generally succeed immediately — but when the inflam is extensive, we are loth to apply so large blisters — but I have applied with success a blister from the toes to the hip — but when these are inadmissible, Laud 1 part to water 3 parts, I have found an extremely serviceable wash — When suppuration has already taken place, free openings should be made —

Commences in some others— the pain is not
Acute but of the burning kind. an intolerable
itching sometimes annoys the patient the
tumefaction is generally not so great as in
other species of inflam. the skin feels thickened.
In the face, it comes on suddenly, tho' sometimes
preceded by rigors & sickness. Colour disappears
above— ardent heat, tingling, itching &c. the
skin tho' not hard has a shining pellucid
appearance— eyelids swell sometimes so
as to prevent the sight— small vesicles arise,
which burst & the fluid excoriates the skin—
the Erysipelatous differs essentially from the
Adhesive, as in the former the vessels pour out serum
& not lymph, thus causing vesication— hence
as no lymph is poured out, or adhesions formed, if the
inflammation proceed deeper than the skin, &
suppurates, the pus runs thro' the cellular
texture, causing inflam. wherever it goes.
this causes a peculiar feeling to the hand, compared to walking
thro' a morass— this cellular membrane becomes
gangrenous, & when openings are made, comes
away like wet tow, with pus of a very bad smell
this is particularly apt to take place in the
buttock— & the skin tho' inflamed, feels healthy & does

the same happens on the cheeks; instead of falling into the mouth, it bursts externally — the same in the abdomen &c — tho' this is a general rule, yet it is not always safe to trust to it; for some accident, as a jolt, may burst the adhesion & discharge the pus into the cavities &c. therefore abscesses so situated should be opened immediately. Ulceration is usually attended with inflammation of the adhesive band, which prevents the pus from falling into the cellular texture or the cavities — the pain attending it is a soreness; tho' this does not exist, when ulceration goes on slowly or in dead parts. —

Besides common or phlymonous inflammation there are other species, among which is, the Erysipelatous inflam. this is preceded by shivering, then a hot stage of fever — it is generally situated on the cutis vera; the skin is of a bright or somet. dark red colour, a little inclining to yellow — the colour disappears on pressure, but returns immediately when the pressure ceases. the inflam. spreads sometimes over the whole body, being cured in one part, before it

of Ulcerative inflammation. In this species, the whole substance of the part affected is destroyed, & taken up by the absorbents - it is generally preceded by suppuration, & forms a cavity to contain the pus, which probably increases the ulceration - it however sometimes precedes suppuration, as when any particular irritation exists, as the venereal, in Cancers, also in death of the parts, when the living parts suppurate - it is caused or accelerated by simple pressure, as happens when abscesses point & open - the ulceration by a wise law of nature, always takes place towards the external surface - suppurating tumours for instance in the dura mater, tend externally - example. a man received a violent blow on the head, & suppuration took place under the skull - it was one would suppose that the pus would have descended into the soft substance of the brain; but on inspection it appeared that it was making its way thro' the bone & had already caused the absorption of the internal plate & diploe, & there remained only a very thin external plate - If I had not been aware of this, I might have done some material injury with the trephine -

Nov. 9th Dr. Stuyvesant on pus.

Pus, when healthy, is of a light straw colour, of a cream consistence when cold in moderate, but warm, has a peculiar & well known smell; is of a mawkish taste; does not putrify if pure, but does, when mixed with blood, or even carious bone. contains white globules. does not unite with water, unless shaken or heated. pure pus is not corrosive, a fact now well established; it would be very strange if it was, for the tender granulations on suppurating surfaces are constantly covered with it. it is irritating to healthy parts, but in this does not differ from other animal fluids — tears excoriate the cheeks, in fistula lachrymalis — it is distinguished from other fluids by having white globules, & these coagulating by the addition of Sal ammon. Mr Hunter first observed that blood vessels take out the action of glands & secrete this matter — Mr Home says it is secreted often in 20 hours after the commencement of inflam. — in the urethra the inflam caused by a bougie terminated in suppuration in 5 hours — it forms sooner on secreting surfaces than on others. the globules are not exist in the pus when first secreted, but are formed in it afterwards —

Sickness and vomiting have often caused the absorption of buboes — blisters also have the same effect almost constantly — In abscess formed in the anterior chamber of the eye, where the pus is visible, I have seen it absorbed & the eye restored by bleeding purging & blisters — it is unfortunate that we have no certain means to effect this; for instance in inflam. in the cavity of the abdomen it would be very desirable to prevent suppuration, or to cause a reabsorption of pus. if it was formed — the in empyema the antiphlogistic treatment is without doubt the most efficacious, & frequently a sure means of effecting it.

Note on 1st part of last lecture —

Inflam. produces very different effects on different constitutions. for instance, in a case of hydrocele, in which I injected port wine which generally produces only sufficient inflam to unite the coats, the injection however here inflamed it so much that it produced a very violent sympath. fever & sloughing & a great sinking — I never saw so much inflam produced from the same circumstance — (see Case of hyd. Mr Leyden) Mr Hunter tells us, he saw death the immediate consequence of the extirpation of a strumous testicle; I also have seen it follow amputation. it is therefore necessary to have the probable consequences in view before operating, or judging of accidents & the constitution of the patient is to be consulted —

was a violent pain in th head, this ceased as soon as th abscess was opened — I have seen two instances of nervous fever originating from abscesses near th abdominal ring — in th first, th cause not being known, th patient died — in th 2d. th abscess was opened & th patient recovered immediately —

Abscesses on th face should be punctured, for th deformity is much less, than if left to burst of themselves — then impeding respiration should also be immediately opened.

2 modes of opening are used. th lancet & th Caustic — when th patient are very much afraid of th knife, I have used th Caust. alkali, applied for 8 or 10 minutes — then if necessary, a puncture may immed. be made thro' th dead portion, as this has no sensibility — th cavity after being opened is to be treated as any other suppurating sore — it is sometimes most convenient to make punctures only, sometimes incisions, & sometimes sections &c. these circumstances will be pointed out hereafter —

Suppuration sometimes ceases suddenly & th pus is reabsorbed. if we could discover some certain means of assisting this, it would be an important object of practice —

readily th Shape of th part, besides being easily Changed
it should only not be too heavy. — Many apply
Stimulating resins &c. to accelerate th suppuration,
or rely to bring it to a head; but it is very doubtful
whether they accelerate suppuration, & are impro-
per as stimulants — it is not certain tho' asserted
by many that poultices accelerate th suppuration,
but at all events they Soothe th pain & are without
doubt the best application. Under this treat-
ment th matter points & th cuticle bursting
th pus is discharged — this sometimes takes place
by th death & sloughing of th Skin over th abscess.
Thus it opens if left to Nature; but it is often
preferable to open it by incision; 1st when th
progress towards th surface is too slow, or
when th matter is deprecated. 2d when there
is any danger of its bursting into th Cavity
of th thorax or abdomen*, or into th brain, when
Situated under th skull; for notwithstand-
ing th adhesive inflam, th pus may burst
tho' th Sac formed round it, into th Cavity — also
in Paronychia or where there is danger of its
injuring th bone. — When th System is
much affected, it is also advisable — A case
of an abscess in th Calf of th leg, where there

* also over large joints.

Hectic or symptomatic fever (symptoms) commonly assumes the remittent type. it is attributed by Dr Cullen to the absorption of pus. but there are many arguments that oppose this doctrine. the hectic commonly attends inflam. of particular parts only, as of the vital organs &c and often before suppuration takes place, as in whitswellings - why does it not take place equally in large abscesses in the cellular membrane where an equal or larger quantity of pus should be absorbed? - I have seen large buboes suddenly absorbed without producing hectic - hectic is sometimes cured by issues, now these augment the suppurating surface, & should of course increase the quantity of pus absorbed - When hectic is produced by diseased joint as by whitswelling, an amputation of the limb puts an immediate stop to the hectic, tho' the suppuration in the stump is much more considerable than was that of the time, if any existed - from this circumstance, I conclude that it does not arise from the absorption of pus, but from the irritation of an incurable disease. Treatment. Opium, emetics - poultice to the part affected. this is a soft application, & takes

which are a most effectual remedy & often render
copious evacuations unnecessary; they should therefore
take the place of these in puncture wounds in
warm weather, when tetanus might be feared. —

The good effects of adhesive inflammation are
1° the cure of wounds; 2° it prevents inflamed surfaces
from suppurating; 3° it forms the sacs of abscess, preventing the pus from spreading; 4°: cysts are formed
by it, around foreign bodies, as balls, glass &c. 5°: ~~it forms~~ in deep seated abscesses it forms adhesions of all the parts between the abscess & the
~~adhesions round collections of pus, thus preventing~~ surface; as in abscess of liver, the peritoneum & liver adhere, so as to prevent the pus
from falling into the cavities &c. as in abscesses
in the liver, a passage is made for the pus to the
surface, & the adhesive inflam. prevents the pus
from falling into the abdomen which would be fatal,
or into the thorax, where it would form an empyema.

When the adhesive inflam. is so violent, that
it cannot be resolved, or the causes continue to
act, it terminates in suppuration, and forms
an abscess, i.e. a circumscribed cavity contai-
-ning pus — when suppuration is abt. to take
place the pain &c increases, but diminish
after the abscess is formed. then rigors come on
which are followed by fever, or if dissolution is
approaching, no fever, but clammy sweats follow
the chills — . . .

but when nausea or vomiting is excited, they act sympathetically; for then diminish the action of the heart & arteries — this remedy is often inconvenient, as in cases of fractures, &c. but where this inconvenience does not exist, they should be used freely — the neutral salts, particularly Sal Glaub. — Antimonial medicines produce nausea and perspiration by the assistance of mild tepid liquors — Mercury also has been used — —.

Rest is of immense importance and the proper position of the inflamed part. it should be the highest part of the body if possible — if in the hand for instance, the hand should be kept elevated, for this diminishes the arterial & increases the venous action —

Local Remedies, and 1° Scarification. 2° Cupping & 3° leaches — but if there is any fever, before these, General bleeding should be resorted to — Cold applications to reduce the heat to the natural temperature — but when reduced to this, the cold should no longer be applied, as it then becomes a Stimulus — the part should merely be rendered Comfortable — preparations of lead, spirit of wine, & vinegar reduce the heat of the part —

4° fomentations, simple, or medicated — 5° Blisters

suppuration might produce dangerous Consequences, it is certainly proper to take every means to resolve it— thus I have seen a case of opthalmia, which might have been resolved, terminate in suppuration & destroy the sight— also a very serious fistula in Ano, by not preventing the suppuration of an inflam. on the buttock— both of them being the termination of other affections —— In general, inflam. proceeding from accidents, if it proceed farther than is necessary to effect a cure of the accident, should be as resolved if possible— as to the means, they are happily well known. they are 1st to remove the Causes of inflam. if possible. 2 to moderate & alter the action of the parts— to effect the last indication, the means are general or local. the generalones are Slow diet, bleeding, purging, rest &c. the diet should be entirely vegetable, as fruits &c— broths, spirituous & fermented liquors are all very improper —— bleeding is the most powerful means, & produces its effects in two ways. 1st it empties the blood vessels generally & lessens their action; 2d the vessels being partially emptied are obliged to contract; now contraction is an action the very reverse of inflam, which therefore must cease to give way to this new action. purging also acts by reducing the action of the bloody

The next termination is by an effusion of serum, as in blistery — when these do not draw well, the inflam. not terminating in effusion is much greater. It is probably by this termination of inflams that hydrocephalus is often produced — as also hydrothora & hydrocele — this last I have often seen following inflammations — also inflammatory fevers terminate in perspiration, i.e. by a copious secretion on the skin — Inflam. sometimes terminates in haemorrhage from a ruptured vessel, as I once saw in ophthalmia, a violent case of which was cured by a spontaneous rupture of a vessel in the eyelid, which bled largely — If inflam. is not resolved in some of these modes, it terminates in suppuration — this is sometimes so serious an inconvenience, that we ought generally to endeavour to prevent it by resolution. tho' in some cases it is seldom to be attempted: as in punctured wounds where there is danger of tetanus; bloodletting &c to resolve the inflam. would increase the danger, & of course are improper. When inflam. is the termination of some general or local affection, as of fever, it is generally ordd not to prevent suppuration — but when the inflam. is situated in the neighborhood of parts, where it

Nov. 8th Dr Physick — Of the effects of inflammation on the Constitution — these effects vary very much according to the extent and situation of the inflammation — if it be small in extent, & situated externally, its effects are slight; but if attacking the theca of a tendon or the periosteum, tho' small in extent, its effects are however violent — Violent cases of inflam. are accompanied by a sympathetic fever — a man of 36 years of age ~~was~~ received an injury in the leg by a barrel of iron falling upon it; 6 days after I was called, & the man was said to be convulsed. I found him in violent tremor, so much that he could hardly speak, his pulse small & frequent, extremities cold &c He was relieved in an hour a dose of laud. & the application of laud. to the injured part. — *The effects vary much according to the state of the Constitution & of the patient. In some instances when very extensive or in particular parts, it produces delirium &c — Of the termination of inflammation — the adhesive inflam. generally when properly regulated terminates in resolution — Sometimes the ~~of~~ in the gland, the lymph extravasated is not reabsorbed & forms schirrous (not cancerous) tumours — as in the schirrous tonsils, breasts, &c — which are indolent tumours & frequently remain a great length of time —

In irritable habits, the effects often very violent?

*See note at the end of this lecture —

If the degree of heat be determined by the patients sensations, it will be found to be very much increased; but by the thermometer, it is shown that the heat of an inflamed part is never higher in reality than that of the internal parts, as of the Diaphragm.

The matter secreted by the vessels in adhesive inflam is lymph, which becomes a vascular coagulum & unites the parts together; for the sides of a wound in this stage of inflam are found covered with the lymph, which matter of adhesion also occasions in part the swelling — this lymph however undergoes some change; for in inflamed veins, it is deposited on the internal coat of the vessels; now if it were not changed, why would it not mix with the blood, as in the natural state?

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* there is evidently in general an increased action, but the action is not only increased, but altered — indeed a weak degree of inflammatory action may exist without any increased action. — Nov. 1816. Dr Physick's lecture —

6. Inflammation is divided very properly into three stages. 1st the adhesive, 2d the suppurative and 3d the ulcerative.

1st Adhesive. this originates in the smallest vessels and spreads to the adjoining ones — more blood passes thro these vessels than in their natural state & the diameters of the vessels being enlarged, & there is also an increased action of the same vessels — the first position is proved by Mr. Hunter's experiment on Rabbit's ears, which were frozen &c — see Hunter on the blood. these vessels in the frozen ears were evidently enlarged when inflam. came on; hence more blood passed thro' the inflamed part. of the 2d there can be no doubt: for tho' there is more blood passing thro the part, yet it circulates so fast that the arterial colour is not lost; hence the redness of inflamed surfaces; whereas if there was any remora, the part would become purple. as when you tie your finger —

2d Swelling arises partly from the enlargement of the blood vessels, & partly from the lymph thrown out by the injured vessels — In adhesive inflam there is not much pain, but when the suppurative inflam. comes on, there is a throbbing pain —

1814. this pain Mr. Hunter supposed depend on a convulsive action of the vessels,

if he tells me not I meet this by low diet
& th antiphlogistic regimen — th effects of
th above causes depend also greatly on habit;
for instance, in persons not accustomed to manual
labour th hands will blister by th same exertion,
which in workmen would have no effect
habit also gives a great power of bearing heat
this we see, in drinking hot tea, which would
scald th skin on th cheeks, while th lips are not
affected by it —

Inflam. has been attributed to 1st. lentor
of th blood by which th vessels become clogged:
2d. Error loci, so that too large particles of blood
get into small vessels & obstruct their passage thro'
them — 3d. Spasm of extreme vessels — 4th. morbid
increased action; & 5th. th Wilson supposes it to
be a debility in th extreme vessels or capillaries,
while there is an increased action in th large
trunks, & that th inflam will cease only when
th equilibrium is reestablished — As to these
theories, they are of little consequence, & we
accordingly pass over them very slightly, & proceed
to mention th principal phenomena of
inflammation — th end of lecture —

disturbed, and if the inflam. proceeds further, they are totally suppressed; as takes place often in the eye — The Causes of inflam. are Chemical or Mechanical: the Chemical, are heat, cold, Caustics; the mechanical are stretching, bruising, Cutting &c. these Causes produce inflam. after different intervals; 8, 12, 24 hours or more — the same Cause in some constitutions will produce the phlegmonous or Common inflam, & in others the erysipelatous — Dr. Carmichael Smith thinks the erysipelatous attacks the Skin, the phlegmonous the Cellular membrane, Rheumatic the muscles &c, but this is controverted by the inflam following an amputation — it is not erysip. in skin, phleg. in cellular substance &c but is precisely the same throughout the wound —

Feber is also a cause of inflam, as in Critical abscesses —

Inflam. in different people produces very different effects; in some a cut for instance will unite immediately, & such persons say their flesh is good to heal; which in others every injury festers or suppurates — hence before an operation, I frequently ask the patient, if his flesh is good to heal.

often connected with disease & hence may be divided into the healthy and diseased inflammation; it is only of the former species that we speak here. this always tends to a cure, unless the part be disposed to disease; in this case the inflam goes thro' its first stage, but then becomes the cause of disease. thus if an eye, predisposed to inflam, be wounded, the inflam, which attempts a cure, will proceed too high & become a disease. thus also in the knee disposed to a white swelling, any injury producing inflam will also bring on the white swelling; & in the hip, disposed to hip disease, the inflam will terminate in this disease; & in the breast, in constitutions tending to cancerous affections, injuries will cause the schirrous breast.

The name of inflammation was given to this action from the supposition that fire or increased heat was the cause of it; tho' this is erroneous, the name may however be retained — in inflamed parts the sensibility is increased; in fact in those parts, which in the healthy state are not sensible, become by inflam most acutely sensible — as tendons. In the skin in inflam. of skin, itching is the 1st symptom — the other symptoms are, Redness, swelling, a throbbing pain — the functions of the inflamed parts are

th brain, where th consequences are sometimy fatal.—

Of wounds with an external communication—

If th parts be immediately placed in exact contact, union will take place in a longer or shorter time, in 6, 12, 24 hours or longer. this is th union by th first intention & takes place without any inflammation— it is performed by means of th extravasated blood, from which th serum & red globules are mostly absorbed, & th coag. lymph becomes vascular & forms th bond of union— this union is not attended with pain—

When th union by th 1st. int. is by any means interrupted, abscess another process becomes necessary, & union by inflammation is th consequence—

Of Inflammation— In most accidents this demands th greatest attention from th surgeon— In some cases th inflam. will not be sufficiently great to effect an union, in others it will be precisely equal to th task & in others again, it will be too great, when it will terminate in suppuration. hence it is necessary for th surgeon to discriminate th exact degree necessary, & to excite or diminish th existing inflammation accordingly— thus it appears that simple inflam. when properly regulated is not a disease, because it is necessary to effect a cure; but it is

Nov. 4th 1813. — ext from Doct. Physick's lecture. — & corrected in 1814-15. —

Dr. Physick —

Accidents are of two kinds, viz. those which inflict wounds without any external communication & those where there is an external opening — the most simple accident is a mere concussion — the effect of this is a debility in the affected part. — the next is that in which small bloodvessels are divided; here there is an extravasation of blood, which by coagulating serves as a bond of union. Similar to this case are all bruises, simple fractures &c. when the blood extravasated, does not coagulate, but remains fluid, it forms what is called ecchymosis — the absorbent vessels generally take up this extravasation & may be assisted by moderate pressure; but sometimes this is not the case and a large abscess may be the consequence of leaving the fluid in its present state — this must be obviated by giving an issue to the fluid by a small opening, as by the puncture of a lancet — if instead of this puncture, a large opening is made, the whole cavity will suppurate, whereas if punctured, the wound will heal immediately — (by 1st intention) — extravasations of this kind are frequently found on the heads of newborn infants, after a tedious labour; — The rupture of a bloodvessel sometimes produces much more serious consequences, as in

Notes on

Lectures on Surgery—

November 4th 1813.—

Vol. 1st containing ~~Lect[illegible] on accidents in general~~— Lect 2nd

Surgery. Doctors Physicke & Dorsey.