by an application of the principles, misapplied by Silva & no objection to their just & cautious application. If Van Swieten has said that fevers are owing to the Impetus faciens, & if Hoffman has in any measure attempted to explain the Nature of that we may suppose both those of Advantage. Further Reasoning is necessary & the only means of correcting false Reasoning. It is an Art like all others in which we become dexterous & strong by the Exercise of it. I even maintain it is unavoidable; the Empyric System would be nothing without Analogy; I can venture to assert that of a pretty general acquaintance I have among Empyrics I never met with one that avoided Reasoning. Nay they not only employd Analogy but if they did not get an obvious one had recourse to a far fetched one; nor can any of you, if you examine the state of your minds, say you find it otherwise. If Reason is unavoidable it is only Reason that can render Reason safe; you can never be secure against Error till you have examind it. I shall add another Reason for what

I advance; I have given two or three Instances and 85
more might be adduced if necessary, in which even unlimited Dogmatism has been of use; but will it not be much more so, when more cultivated? we have only begun within this 100 years to correct our System, & only begun to our Stock of Facts in the present Century. It has been said that we ought generously to plant for Posterity, but this has not been the case so often as has been alledgd, for I doubt not but the present Planter find as much pleasure in raising the tender shoot as his great grandson can have in cutting down the Tree. ——
The first part of our Plan for a System of Physic is collecting our facts; now these facts are first to be taken from the Art itself & recorded in such a History as that of the Empyric Plan, & therefore our first step, is the two first Parts of the Empyric Plan; But as fallacy is here to be guarded against, it may in a great measure be removed by mentioning the source of that fallacy. But some particularly fallacy will either be removed or diminished by a constant Attempt to generalize; every general fact not only corrects Errors but delivers

from the Palacy of minute & particular Observations. Further, facts & experiments are to be collected from Natural History from Mechanical & Chimical philosophy, from the Chemical Analysis, & from Anatomy & observation of the sound & morbid states of Bodies. Now with a Collection of Facts from all these sources, & from all Ages & Countries we provided, & may, I hope, lay the Foundation of a secure & sound Analogy.—

Lect: 18th. Novr. 26th.

These are the few propositions to be carried with you & which I mentiond not satisfactorily yesterday; that Analogy is unavoidable on an Empyric Plan, that it should be extended to more & more general facts, is truely Reason; & being thus extended a little further, becomes Dogmatism. Analogy, Reason, Dogmatism, which in my Opinion are all one, & the same things are necessary for bringing out the particular facts that are to be the Foundation for the whole & the surest means of avoiding Fallacy. Reason is also necessary because unavoidable to the human

mind. And I may add as an Argument a posteriori that this method has been of considerable use already; & if so in a short time, how much more so will it be in a much longer time. You will determine with me that we are to cultivate Medicine upon a dogmatic Plan, taking in the most valuable parts of the Empyric Plan; We are to lay our Foundation in Induction and History— Our Facts are to be collected from the Art itself & we are to attempt an Nosologia Methodica; that is, a Reduction of Diseases into Genera & Species. Sydenham very judiciously attempted this long ago but his Plan was neglected, till Savages within this 30 years took it up; others have touched it, but their labours is small in comparison of his & the Work still but begun. Gaubius in ordinandis Morborum Differentiis, touches the foundation says that we need not despair of Success "Sydenham &c"— But that work for Point is still at a great Distance, & one may come sooner at it by the study of proximate

Causes than by extinal Phenomina. It is certain that Diseases of the same extinal Phenomena may arrise from different proximate Causes & therefore may be very different in their Natures. If we are to study proximate Causes this is Dogmatism in its full form. This part of our Plan has been objected to, but after all the objections made to it, it has been attended with use. An Example of this may be Anatomy which by observing the Parts affected to our Eyes, has enabled us to understand the Nature of many of the common, as well as peculiar phenomina of Diseases. Morgan could not have reasond as he has done with out Anatomy. Remote Causes very often illustrate the general & particular nature of Diseases. and with regard to remote Causes how many assistances do we not obtain from Mechanical or Chemical Philosophy. Will any body doubt of the Advantages of Physical Geography. Chemistry has given facts determining the Effects of Aliments. The Nature of the Disease is often illustrated by the Nature of the Remidy. A common Remidy indicates a Disease very much

of the common Nature; here Chemistry— There is no building upon a Foundation of Empyricism, without Dogmatism. How is the whole to be conducted, & this knowledge to be acquired? shall it begin with Empyricism; stop there; or proceed to the Study of proximate Causes. We must employ more or less of the Synthetic Method, & must unite our Facts; It will be necessary in any Event but more so at the present. There is no delivering a Course of Practice without a set of general Rules, wch last are only a Course of Institutions. A Particular here deserving your attention is Experientia laudatur & alget. What we know has been collected from Dogmatism; & strip the professd Empyric of what he gets from the Dogmatist, he will appear a naked unfledgd Animal, a shapeless unlicked Cub!— While I acknowledge that Dogmatism has done much mischief I say it has done good upon the whole, & the Salaries attending it may

60 be guarded against by the Means I have hinted
out. I alledged the System was affected with
almost Incurable Imperfections, but there I hasted
the Matter too far, & the objections lay mostly
against it as a System, & as such they should stand
& are likely to stand long. System is ornamental to
order, but System gives neither perfect in the Whole
nor its Parts; it has also covered dullness. The several
parts of Dogmatism turn so much in a
circle that we are said not to know any of the
Parts till we know the whole; but this Objec-
tion is common to it with all the Sciences. Tho'
I admit these general Objections yet we are master
of many usefull particulars in System, & I think
we are at liberty to cultivate it. I have warn'd
you already & shall every where guard you against
mistakes where I see occasion.
I should now proceed to the several Parts which
Medicine comprehends, & say how they are to be ar-
ranged.

Lect. 15th. Nov. 24th

General Plan & Course of the Study of Physic

I can by no means say how a Course of

more years is to be undertaken in one, or how 61
the Science is to be attaind without a previous
knowledge of the auxiliary Arts & Sciences; in
short I can not see how a man is to take a
part of this Study only while every part is
necessary to the knowledge of the rest; I am
to say nothing to such Students, & passing also
over the consideration of the Apothecary, I am
to say how a compleat Physician is to be form'd
in the full extent of the Dogmatic Plan; & not
only how the Able, but how the Ornate Physi-
cian is to be form'd. While you regard all you
aim at the Fortune of a Rabbi, I would have you
to put it upon the same & Merit of a Boerhaave

I wish I could find out a means of acquiring a
preparation from Nature; viz: what we call
a Genius. I must be content to say in general
that a man devoted to the study of Physic should
be of good parts, sound Judgement, & fond of
Study. Every one who does not find a Disposition
to assiduous Application should abstain from
the Science. With regard to the Preparations of
Art, he should first be generally fourn'd in

literature. Most sciences are only to be come at by the Medium of literature; & to say nothing of the Antients, most of our modern works are delivered in latin; it is the foundation of every thing that can be called literature. It has been alledged that learning is not very necessary, but if you will look into Morgagni de causis & sedibus morborum you will see what advantages that gentleman has received from writers before his time. To the study of the latin is to be joind that of the Greek chiefly for the sake of the antient writers in that language & because the latin can not be acquired without it. I would have added to this, the knowledge of modern languages; the French writings are necessarily studied, & so much the more that the writers of other countries chuse now & then sometimes to use the same language. also the Math which I have been recommending should have been acquired in younger years, & if these are still to be acquired I would have such persons not to begin the study of Medicine untill he shall have acquired them. Next as logic & meta-

physics are as it were the Analysis of the human soul; they are necessary; but it is not my business whether they be taken from Aristotle or from Locke. Also the study of Criticism & Morals is necessary; the first is an ornament, & the second necessary to the understanding the operations of the mind. Boerhaave was lucky in having studied Divinity first, & these other Branches belonging to it; amongst the rest logic which made him a more ornate Physician. Next every Branch of natural knowledge, & therefore the Mechanical & Mathematical ought to be known. From a raze for mathematics which lately prevailed we have almost fallen into a total neglect of them; but this extreme is more dangerous than the other. Mathematics are not only necessary for Physiology, but for the other Branches, & necessary to explode the false Applications of mathematics. & I would even recommend not to be content with the knowledge of the general parts of Mathematics, mechanics & Hydraulicks, but the whole. There is a natural connection between every Branch of natural knowledge. Chemistry has been considered as a Branch of Physic but most un-

64=happily for it. But it ought to be studied upon a phylosophical Plan, without which it can be of no use even in Medicine. And here I would not have gentlemen to set any limits to their Studies. Every fact in all these sciences has a Connection with almost every other. But you will observe consequently that the knowledge of the several bodies upon which in the different Sciences the Student has to operate, must be studied, that is to say natural History; this is necessary to the knowledge of the other sciences as also this of Medicine. Natural history has been divided into three parts; Botany the first which has been cultivated chiefly by Physici=ans; It may be cultivated as soon as the un=derstanding is ripe to comprehend it. The second is Zoology which may be also taken as soon as it can be comprehended; but it will in general be better to let it alone till Anatomy is understood. Next Minerology which I think is not possibly to be comprehended without Chemistry. I would recommend this Advantage to you to be drawn from the whole

of natural History viz: that of System, Genus 65 & Species. This has not been applied to any part of science, but natural History, & in this, till of late only to Botany. I have hinted that the Nosologia Methodica is properly the first Step in our system, and has fell short of the Perfec=tion it might have acquired from an Inattenti=on to the Laws of method. The next Step is the knowledge of the human Body. It would be lost time to convince you of the minute Ap=plication it would admit of, or to say how far it extends, & that not only human but compara=tive Anatomy is to be studied. The prosecution of this I shall leave to your Professor, & shall only say that you are to consider it chiefly as a work of Memory. Many means might be suggested but I shall mention only one, that is the frequent aplication of the Parts to their use viz: to Physiology in which your Professor supersedes me. Now, these preliminary Observa=tions being finished ~~we proceed~~ [illegible]

 ~~having being fixed~~ we ~~we~~ proceed to the Consideration of the, Proper. Study of the Art, itself.

This may all be comprehended in the Aphorism "de Cognoscendis & Curandis Morbis." When the Institutions are studied it is proper to proceed to the Practise which is to be learnd partly by precept partly by Example.

— Lect: 15th Nov. 28th. —

Definition of Medicine —

Medicine is the Art of preserving Health. & curing Disease. here it is defind by its end & purpose; this would seem to require an Explanation of the Terms Health & Disease, which at present may be left to common experience and apprehension. In its full extent it takes in other Animals comprehending the Hippoct: &c. We are confind to the Health & Diseases of the Human Body; I have made it an Art, but it has been considerd as contemplative & as a Science. So Boerhaave

of these "corum" he gives no sort of a

Character, but it is difficult to do that and explain Medicine by the Means employd in it; for here the Actions of the human Body, as well as the ceasing & intermeling of many of these Actions are employd among these Means. It takes in the Air, & the Relation that the human Body bears to every thing about it. The Course of Practise says Boerhaave, "est Disciplina &c.

It is a Collection of Doctrines & precepts, fit to be applied to the Individual, but these cannot be well understood unless considerd in the Abstract. In the Cure of any Disease hardly any one Symptom is considerd but with a Regard to others, & so in treating of the Causes. At first sight it will appear that these general Doctrines apply to a great many subjects, & we must take them separately and in a proper order. Boerhaave makes his Division into five parts to wit Physiologia, Pathologia, Semeiotica, Hygiene & Therapeutica; The first treats the Doctrine of health, the second the doctrine of Disease, the signs of coming

& these &c. But this Division is not good
& remedies are to be thrown out. you will plainly see that it is a Doctrine not to be understood
till after the Practice. Hygiene unites with
the Therapeutics in this; that the whole may be
divided into the contemplative & practical;
but I think Hygiene may in great measure
be neglected in our Institutions, as bringing
by a repitition of the Causes; I would therefore propose another which has been followed by latter
Writers, & reduce Medicine to three Partitions
Treating of Health, which is the Physiological; the second the Consideration of the Body
in a morbid State, which we call Pathological comprehending all the Foundations of the
medies; The third I would call the Doctrine
of means or Therapeutics, and you will what
our Course will be nearly Therapeutical —

I might mention a new Division of Gaubius were I not necessarily to take notice of it hereafter — We began with Physiology; as

Medicum est Norma curvi, so we can only know
the morbid State by tracing the Sound —

It explains that Constitution of the Organs
& that Condition of their mutual Action upon
one another, on which Health depends.
Health is that Condition of the Body by which
the several functions are performed with ease
Alacrity & a due steadiness. These Actions
are many & various but we must take them
seperately, & consider the Whole. We find it
difficult to observe a proper order & Method; different ones have been pursued. There are two general rules to proceed upon, from particulars to
general, or from the more simple & easy to
those that are more complex & difficult. This
can not be done more in our branch, than the
Pons Asinorum or seventh proposition of Euclid
be put out of its place. The second is that as our
general purpose is to explain Causes & Effects we
must begin with Causes; or with such facts as
are previous in Nature to other Facts. We shall
in some cases find it prudent to make use an

exception to this general Rule; and as to the Motions of the human Body running in a circle, & their being causes & effects of one another, take the following Remark: If we look into the Human Body we see it as a System of Tubes, conveying fluids from one part to another, & nothing is more important than Circulation which when it ceases in the Whole body; dies ceases, when in a part that is affected with Disease; But when we consider the Heart as the prime mover, we would begin with it; But on the other hand whatever power of Motion it has in itself these are not durable; & the cause depends from without, as the Nerves. Therefore there is some Function previously necessary that is in the Nerves; these we trace to the Brain; and in going this length so far as yet we avoid a circle in tracing the functions. But, on the one hand we stop the heart by cutting off the communication of the Nerves with it, & on the contrary if we cut off the communication of the Heart with the Brain, by means of Blood vessels, we stop the Exertion of its Functions. But we may still consider the brain as more primary; as is exemplified by the case of the sleeping Animals. I would then conclude that the Functions of the Brain & Nerves may be considered as the primary part; and that this may be considered as the first cause, upon which, more or less, all the other Functions must depend. I would accordingly begin in this way but as this Doctrine has not been delivered I shall not attempt it immediately, but will perhaps try it afterwards; but before I make such an attempt at any time, I must be guided by my Experience; that is to say I must first be satisfied that I shall be able to say any thing worth your while upon it, I am therefore to begin with the Circulation, & then proceed to the Brain & Nerves & last of all to the Natural Functions & as Haller is to be a sort of text Book I must keep to him as much as possible; He gives the

Circulation first, next the Cerebrum & Nervi, & last the Natural Functions. Boerhaave's plan of beginning with Mandication &c was a very difficult order. —

Lect. 16th Dec. 1st

I would recommend to you not to read the large work of Haller, unless when you are at a loss to understand the Elementa, as your time, if you have any thing considerable to do, will not admit of it. I am also to recommend the carefull study of Anatomy before you come to this place. I shall keep as closely to Haller as I can & when I am to depart from him I shall previously inform you. —

First — Fibra, Tela cellulosa

All Animals substance may be reduced to fluid & firm. He avoids beginning with the Fluids because they are of a different Nature and indeed they are best to be learnd after considering the Solids & their various Action. The Solids are to be considerd as the Basis of the whole Body; But Dr. Haller has here transposed against all the Rules of good order, in giving us a very Difficult Chimestry, and in involving us in the Doctrine of Nutrition &c. —

"II Solidorum &c ——— in organicum"

Haller here would seem to confine himself to animal Solid in its aggregate State, and to go no farther than microscopes enable us to discern and he has reduced that to Fibre, Plate, and irregular mass, or Mass of undetermind figure. Every Solid is as you know of three dimensions. Where the Length & Breadth differ in their Proportions, so as that the Proportion of the former to the latter is much greater it is called Fibre; When the breadth bears a greater Proportion to the length it is called Plate; the third part is that in which there is nothing determind in their dimentions. —

"III Fibra &c ——— pertredo. In this and the IV. V. & VI. he endeavours to shew that the more steady parts are earthy & that they are connected by a Gluten, Dr. Boerhaave whom Hal-