in the way of conjecture. The distinguished part of animal matter from vegetable is its more ready and spontaneous sublimation, and giving out matter that did not appear in the entire vegetable and only in the vegetable when pulverized. There is an intermediate state between the pured and ascipient vegetable. We want to account for that. It might have been thought enough to have taken it up in the course of fermentation. I must own that it is not easy to find that from any observation in nature else where. There is an acid and a mucous that otherwise appears, but no art seems capable of explaining it at that intermediate state. When animal mat-

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wherever you see that dead roll of vague terms you may conclude there is nothing under cc
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11. There are general causes of general effects, but they do not touch the particular production of the application of animal fluids. You see from this how much demand there is for an attempt the it should be but-
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100 words, the 100 page of his second volume, 8th section of the 30th "quid de dylo se fact," this he compresses in half a page and hardly says more than what I have quoted from his preface Lentz.

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That because a fermentation always takes place. Therefore I conclude that there is fermentation, and I consequently conclude that fermentation to be necessary for the support of life. I know no experiment showing that the mixture can be performed by unfermented vegetables; and I now ask that vegetables in their viscous state can not be combined with animal matter.

Lect. LXIV. Feb. 20th.

I would undertake a proof that the whole business of glycosification and tannification is performed by a chemical, not at all by a mechanical operation; I observed that it is hard from the whole history of the human
the economy from scarcity and fasting. The animal fluids can not be preserved but by a certain mixture of vegetable and animal elements; and this question is, in what condition is the vegetable element applied to the animal fluids: Perhaps, I said with some hauteur, in its entire state; but I imagined the vegetable under goes a change; first viscous and then acerbent. I said that the mixture of vegetable and animal was incompatible with experiments and analogy. I think all the observations that support fermentation in general, lead to an acerbous fermentation. Vegetables in their acerbate state may be mixed with animal fluids; the mixture of vegetable acids with bile is an exhalation. The bitterness of the bile, and nitricity of the acid are changed, and the yellow colour of the bile is changed into a green. The acid appears very frequently in the stomach; it very rarely appears in the intestinal canal after the bile has been applied, and it seems to be a purpose of the economy to cover acid with bile. Now it is enough that I have given you what appears to be the probable theory; that the production of animal fluid is by a vegetable acid prepared; and that the rest of the work is finished by the application of a certain portion of animal fluid. The saliva and gastric liquor begin the business in the stomach; the covering the acid is only performed, as further advanced, by the
106. affusion of the intestinal liquor, and the pancreatic juice; the former is akin to the gastric juice; the latter, to the saliva; and lastly, by the bile. But the frequent swallowing or its passage that the last idea to the thoracic duct also helps. Further these united matters are poured into the common mass of blood immediately before it is applied to the Drugs; and this may be a principal organ of combustion, yet it is not finished here; if the blood does not remain in diffusion it is not finished, but in the common blood-vessels and general circulation. I shall say how much sooner we can see when we come to half of the blood in the greater vessels; each of these must wear a good deal of discussion. The covering of acid, as I have said, depends on 109 animal fluids applied. The secretaries have their stomach liable to acidity; and when the peristaltic motion of the stomach is weakened by various causes, the acidity appears; because that weaker action does not congeal the exhalent arteries, or bring out sufficient gastric liquor. That ever diseases in these organs detains our vegetable almost a certain time beyond its natural length, gives occasion to acidity. These prove without doubt that the fermentation of the stomach will run on to acidity, if it was not covered. From this theory we can see why nature, for final purposes, as she does in other cases, has made acid stimuli to the stomach, that by bringing out gas.
aly which is found separate; these must 100
mutually contribute to cover each other.
Both acid and oil do disappear in the
common mass of blood; thin chyle is
formed. I can not say but it is absorbed by
the lacteals, and exclusive of other matters,
to nature pours out fluids into other ca-
nalities which are again taken up by the
abscortibes. But the anatomists have never
been able to fill the lymphatics by these
absonances unless when they wound them,
and then they absorb water, oil &c. Many
observations are against it, and promiscu-
ous absorptions especially appear in the
lacteals. They do absorb other matters, but
only in so far as they are dissolved in the
I observe this with a view to the
excretion of the feces from the clype.
Very probably a retroflextion takes place in
the intestines, which forms a matter that
is not miscible with the clype. What is or-
gaged is purified on slowly thru the canal
till the more fluid parts are taken up
by the absorbents. Whether or not the bile
occasions a particular precipitation, and
whether a considerable portion of the feces
are formed in this way you may judge.
How far retroflextion contributes may be
another question. In the purest water
retroflextion arises a substance more
or less earthy; hence Thales, to obtain a
pure water proposes a retroflextion of
its. In some measure matter may be
themselves furnished with sufficient
secretion matter, as appears in the mecon-
ium. Further, as to the question in the
further progress, the clype is taken into
the lacteals and mixed with the lymph
vegetant from every part of the body.
What change this makes is difficult to
say; I will make some remarks on
it. In every cavity of the body to prevent
congestion of parts there is a fluid exhali-
What is its nature we know not, or whether
it be prominent; the probability is that
it is of a particular nature only. This
fluid is reabsorbed but not directly returns
ours after two years old. What justifies 113
I am in very uncertain; your conjectures
may be as ingenious, and solid as mine.
The next change after effusion of lymph,
is on the lungs. In the business of surgi-

cation much has been said. notwithstanding
which it is as uncertain as ever.
The frequent and constant change, in the

capacity of the vesicles in the lungs, gives

an opportunity for a more accurate and

perfect mixture, especially as all the matter

proper to be mixed are brought, together.

Much has been imputed by the mathe-

maticians, to the corruption of the air

but that is now reduced to a very small

matter. We allow that the corruption of the
The lungs. The change of colour happens 110 here, which we will inquire into after this. It can be produced to a certain degree without the application of the air. In case of absorption we must think the chief purpose is to give opportunity for an exhalation. A mephitic air exhalation from the lungs is no longer Cs. fall, what are the causes or purposes are not determined. We may say that mephitic air arises from different bodies in consequence of mixture. The putrefaction of which animal bodies may be said to produce it. The venous blood may then, require ventilation to give occasion to exhale that, now loose lying mephitic
116 air, and it is not to be taken off but by the application of common atmospheric air. This is a conjecture. But this exhalation may be connected with the preparation of blood. It is impossible then that the exhalation depends upon moisture and that the application of the chyle gives a secretion of mephitic air. But that too is a conjecture and the subject the investigator has but lately been started. I would allege that all the past theories as to the effects of respiration may be readily thrown aside. Indeed hardly say that the mechanical figuring and forming particles of size and shape is to be entirely rejected. I shall now take up the fluids as they move on the larger vessels.

Lect. LXV. July 23.

With regard to the employment of animal food we know nothing more than the solution of it; that I am persuaded it may admit of some other changes than solution. Observations say that there is an acid present in the stomachs of carnivorous animals, and that the pure solution of animal food with the admixture of vegetable is capable of acidiety; but these observations are not confirmed, nor are the experiments, mentioned to support them. We must now consider solution alone or be open to new light upon the subject. We must next consider of what nature and
quality the Blood is in the vessels. Dr. Cals
essay de spontanea sanguineus superstitione
has presented me in throwing light upon
the matter. And Haller on the nature
of the Blood seems to keep by the opinion
that since 20 years ago, except in a few
particulars. First our common mass of
Blood appears to be a homogeneous, but
it is a heterogeneous aggregate; I
shall therefore speak of it as such and show
its different parts. In the larger vessels
we should not perceive its parts, if it was
not that upon elevation there is a suspen-
sion, which must guide us in our whole
enquiry, and therefore. First, If Blood
be drawn and exposed to the air, we per-
ience that it is a supraining fluid, and in
a short time loses a portion of its
weight. This has of late been treated of
under the title of haletus sanguinis.
and that will be greater or lesser accord-
ing to greater or lesser heat, or surface.
It concretizes into a mass in a temperature
lower than that of the body. The mass
at first appears homogeneous, and after-
ward, goes into two distinct portions. The
red part remains in a concrete state, and
by degrees gradually becomes more and
more firm. Also we find a considerable
quantity of fluid surrounding the red mass.
This is the separation of the Blood into
water and dextror, and is the most common