

180 from all the others, which come from  
arterial. There is some degree of separation  
in the fluids that pass of by the vas mi-  
norum generum, and the exhaled fluids.  
Upon the other hand every secretion is made  
from vessels that do not carry red blood,  
and must have a smaller portion of the  
red blood than the bile has. so far  
this is a preparation. All the means of  
preparation in the course of the circulation  
is of very little consequence, and it chiefly  
by them depends upon the secretory organs.  
What it is, is doubtful. Anatomists have  
been disputing this 100 years concerning  
the structure of the glands, which, and  
their discoveries have thrown little light  
upon the matter. They say there are every

where decreasing series of vessels, and 181  
that the secretory and excretory canals are  
continued vessels; at least the most obvi-  
ous excretories are formed by the union of  
the secretories. The secretory vessels pour  
their fluids into a receptacle between them  
and the more obvious excretories. All this  
is performed by a Ruëschian structure.  
Whenever we can observe intervening recep-  
tacles, of which we have an instance in the  
maeus, which a thin fluid when poured in  
to the receptacle and afterwards changed.

The question is how a series of secretory vessels  
can produce the secretory fluids. There is said  
to be a series of apertures which will let

182 off particles of one size, and exclude others.

But if you go a step further, where the whole of the mass is homogeneous, you can have no idea of the parts passing thro' as in the case of salt dissolved in water; therefore the notion of different apertures cannot go a great way. But it is true in fact that different apertures have an influence on our secretories, upon what feeding soever, as in the fetus and adult. Indeed it may be supposed that the matters in a fetus may be different from those of an adult. But we can not discern any difference in the blood of young and old in viviparous animals. The vessels

are different; the bile in the fetus is more 183  
thick and much more than oil is formed,  
and are easily referred to the different size  
of vessels. There are further, different degrees  
of constriction upon the secretory  
vessels. Hypticurine which was just before  
separated with its usual taste and  
smell, becomes now an insipid water.  
We can not easily apply this in the case  
of other secretories, as in the saliva. —  
The fibrous matrices give such difference  
of fluids secreted that different apertures  
must have effect. Also different impetus must  
make a change in the secretions. Every different  
order will secrete the fluid of any  
other order. Hypotheses, not a few, have

184 been started on this subject: Winslow explained secretion thus; that the several secretory organs were filters, and acted just as a filter first dip'd in oil, which will transmit oil, and retain water, and vice versa. But this will not apply. Also the theories of the attraction of capillary tubes have been much talked of; but these are destitute of analogy, founded upon a false theory of attraction; and tho' it may apply in some, there are constantly others in which it can not apply.

As to mixture, the difference of aperture may have some effect. In the decreasing series, if you allow the different apertures

to go a certain length, it is but supposing 185 the various secreted fluids combined. But the whole that anatomists have arrived at is observing in general some different distribution; in some cases that they unite like ~~some~~ the of a bristle, and are curled in others; But they find no steadiness in the appearances. This leads to the second set of powers, the interposition of follicles. We can suppose mixture, absorption or fermentation to take place. As to absorption we can suppose that by abstracting the thinner, the thicker is left, which gives the chief form to mucus; If the aqueous parts are abstracted it will give a thicker



186, but a more concentrated or acid, as the  
bile. As to mixture and fermentation, the  
whole of this doctrine is so obscure, that  
any thing I could say would be purely  
hypothetical. We may speak of them in  
general, but we can not descend to particu-  
lars with any sort of confidence. But that  
they are to be admitted is certain. For man-  
ny as great a mystery which was formerly  
as dark we now know. It is produced from  
the serum of blood as G of the academy  
of Turin has shewn, that the serum of  
the blood is changed into an exact simili-  
tude to pus. We see nothing more, neces-  
sary in the change of pus. Serum may be  
effused in the several cavities, and not pass

into pus. But still the doctrine is ill found. 187  
vid, for many times the matter extracted  
in an ascites resembles pus, as I myself  
have seen, and Haller takes notice of it  
in his collection of *Disertationes academicae*.  
When the diffusion. When the effusion is con-  
siderable a quantity of red blood will be mixed  
with it. There is a certain state of impure  
that effuses thinner or thicker serum, a  
matter more or less disposed to this  
change. A little stagnation, with, perhaps  
a little exhalation, is all that is necessary  
with regard to the formation of pus. The  
quantity and quality of the several secre-  
tions, will appear afterwards better, in

188 the Pathology. I might have occasion to  
collect a few chemical facts, which are,  
however in a bad condition, and even they  
will occur in the Pathology. As to the busi-  
ness of nutrition, it is not to be <sup>separated</sup> ~~separated~~  
from that of generation, where indeed, we  
would meet with a great variety of curi-  
ous speculations, but this I can not enquire  
into on account of the situation of my  
course. — I here beg your leave to con-  
clude my Physiology which I could wish,  
might have been more perfect, but its  
being my first <sup>course</sup> will plead my excuse at pre-  
sent; and we will do better another time  
In the Pathology I shall follow Gau-  
bins as a text book; you will therefore

take care to have him in your pockets. 189.

the end of the second Volume