



# THE UNIVERSITY *of* EDINBURGH

<b>Title</b>	Human omentum; a study of the processes of growth and disease as seen in the great omentum in man
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<b>Qualification</b>	MD
<b>Year</b>	1885

Thesis scanned from best copy available: may contain faint or blurred text, and/or cropped or missing pages.

## Digitisation notes:

- Plate IX, XIII, XV, XVIII, XXVI, XXXIX missing from original numeration.
- Plate XXVII repeats twice in original numeration.

Collection of Drawings and  
photographs, presented along with graduation  
Thesis. April 20<sup>th</sup> 1885

Charles Kennedy M. B. C. M.

See note at beginning of Thesis

## Plate I

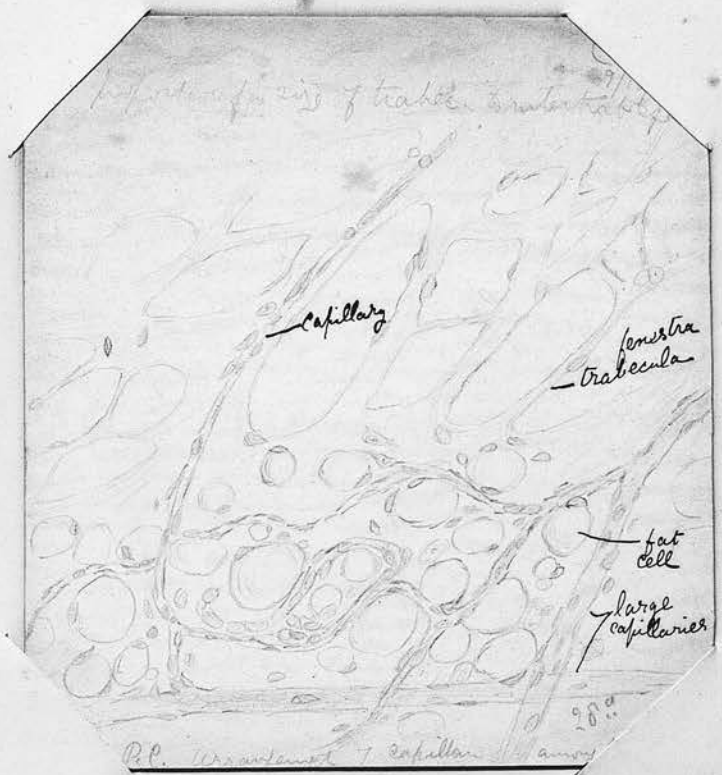
Fig. 1. From case No. 28. age 9 years. (p. 172)  
Showing capillary network among fat cells  
Fenestrae about  $50\mu$  broad, are seen at the upper part  
of the drawing, separated by trabeculae from  $5\mu$  to  
 $20\mu$  in thickness, with an occasional endothelial nucleus  
upon them. At the foot is a large arterial capillary  
crossed, by another at the right hand corner.  
~~Two~~ branches <sup>one</sup> given off by each of these form an  
anastomosing network curving round fat cells  
One capillary runs out among the Fenestrae in  
a trabecula double the thickness of any of the  
other trabeculae which contain no vessel.

The variety in size of the fat cells is to be noted  
and the distinctness of the nucleus in each case  
also the nuclei <sup>of the cells</sup> composing the walls of the capillaries

Fig. 2. From case No. 32 age  $4\frac{1}{2}$  years (p. 169)  
A capillary network formed of large capillary loops, not  
running in the line of the convoluted fibrous bands  
Several groups of fat cells on the vessels. Fenestrae  
in membranous portions enclosed by wavy bundles of  
fibrous tissue, are rounded and few are larger  
than the individual fat cells

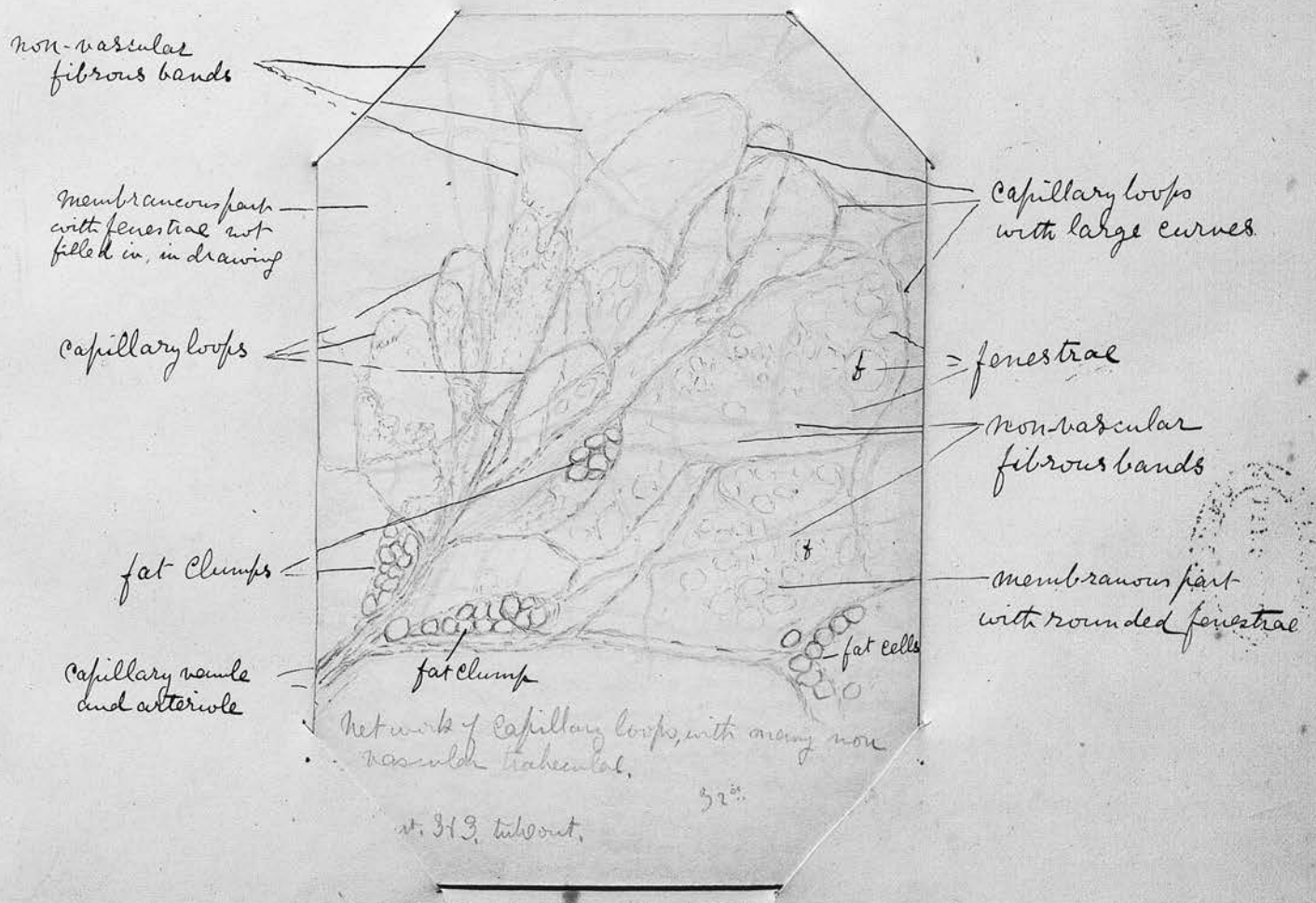
Drawn with Hartnack microscope. No. 3 ocular and No. 3 objective

Fig 1



Hartnack no. 3 or. no. 7 ob. x 240

Fig 2



Hartnack 3 or. 3 ob. tube out

x 60

Plate II

Fig. 1 From Case 28, age 9 years. (p 172)

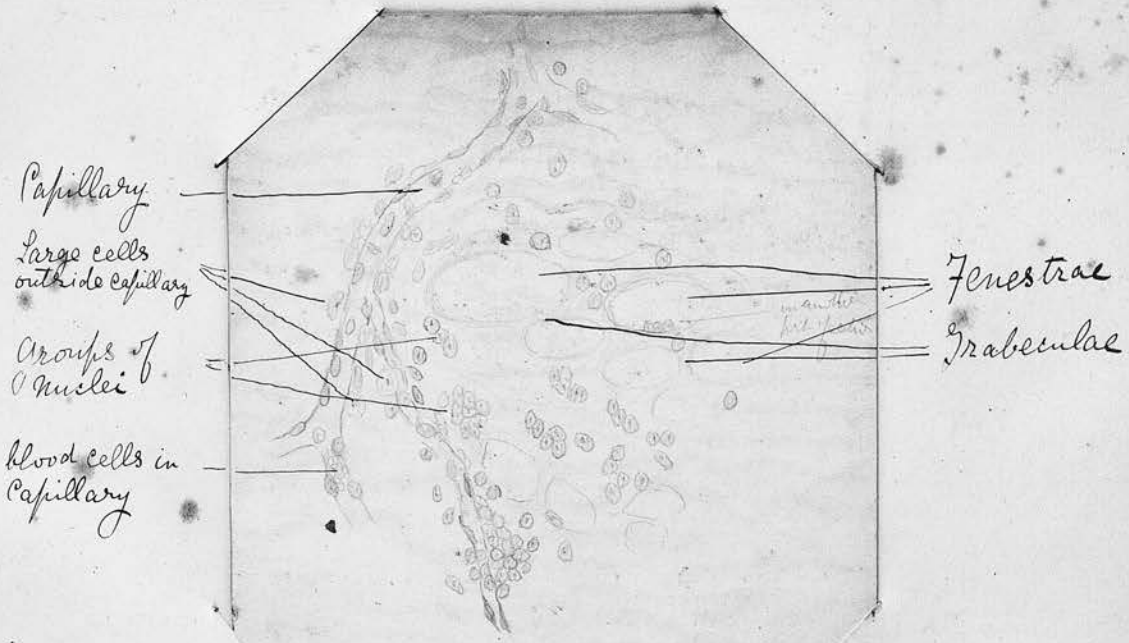
Delicate fenestrated membrane with here and there indications of its fibrous structure. Rounded or elliptical nuclei upon it, sometimes in groups of half a dozen or more.

These nuclei have either originally underlain the endothelium, or belong to germinating endothelial cells, remaining more closely attached to the trabeculae, than the other cells which have been removed.

Fig 2 From case 34 age 11 years. (p 176)

Part from which all cells have been removed, by handling post mortem. The course of the fibres forming the membrane is traced. No bundle of fibrils completely surrounds a fenestra. For opinion of Rollett, Klein and Ranvier see p. 33 of Thesis.

Fig 1



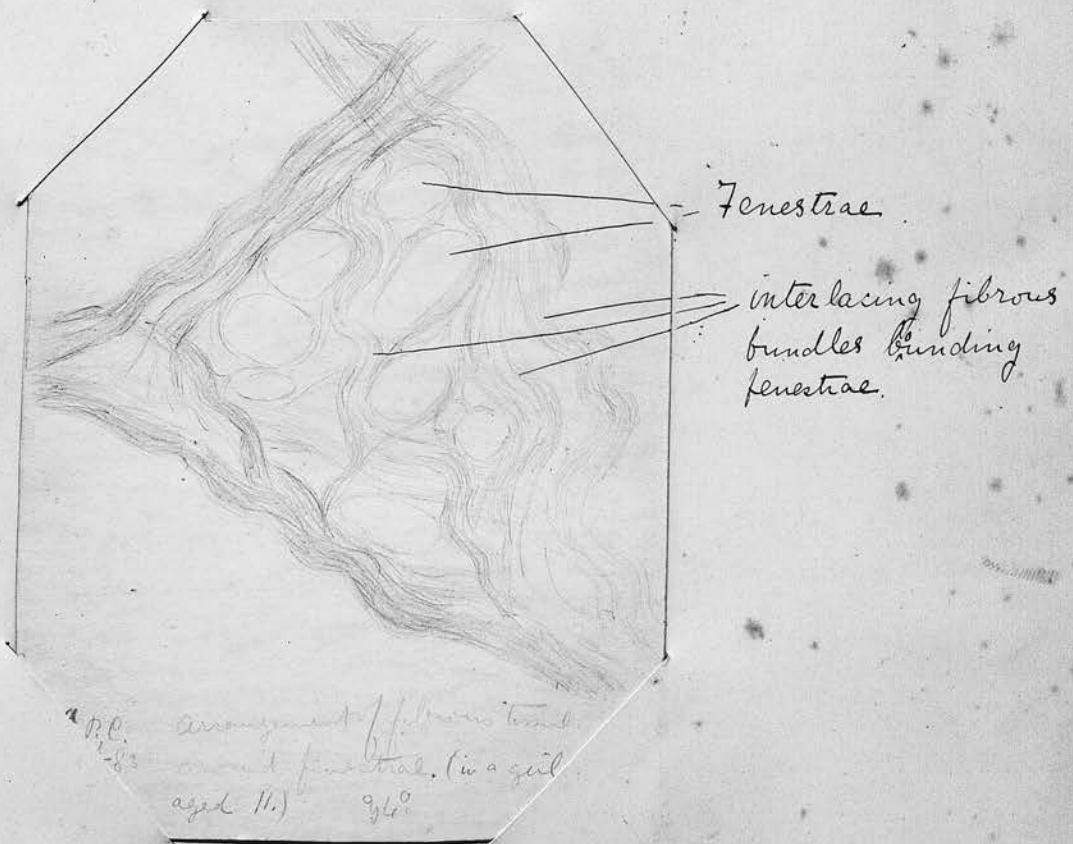
4517.

many clusters of epithelial cells

25x

Hartnack 3 cc. 7obj X 240

Fig 2



Hartnack 3 cc. 7obj. X 240

Plate III

Fig 1. From case No 49, age about 30 (p. 219)  
What would otherwise be fenestrae are here filled  
in with delicate membrane sufficiently strong to sustain  
~~delicate~~ small capillaries crossing it. There are two  
or three fenestrae not filled in in this way and they  
are recognised by their lighter shade.

Magnifying power about thirty diameters (X30)  
(p. 30)

Fig 2. From foetus at fifth month. (about X50)  
No fenestrae. vessels obscured by a good many cells.  
Endothelium remaining attached here and there  
(vide p. 53)

Fig 1



Fenestra

Area enclosed by fibrous bands but filled in by delicate membrane and crossed by capillaries

fat clump

secondary trabecula containing a capillary

Fig 2



capillaries

venule and arteriole obscured by cells

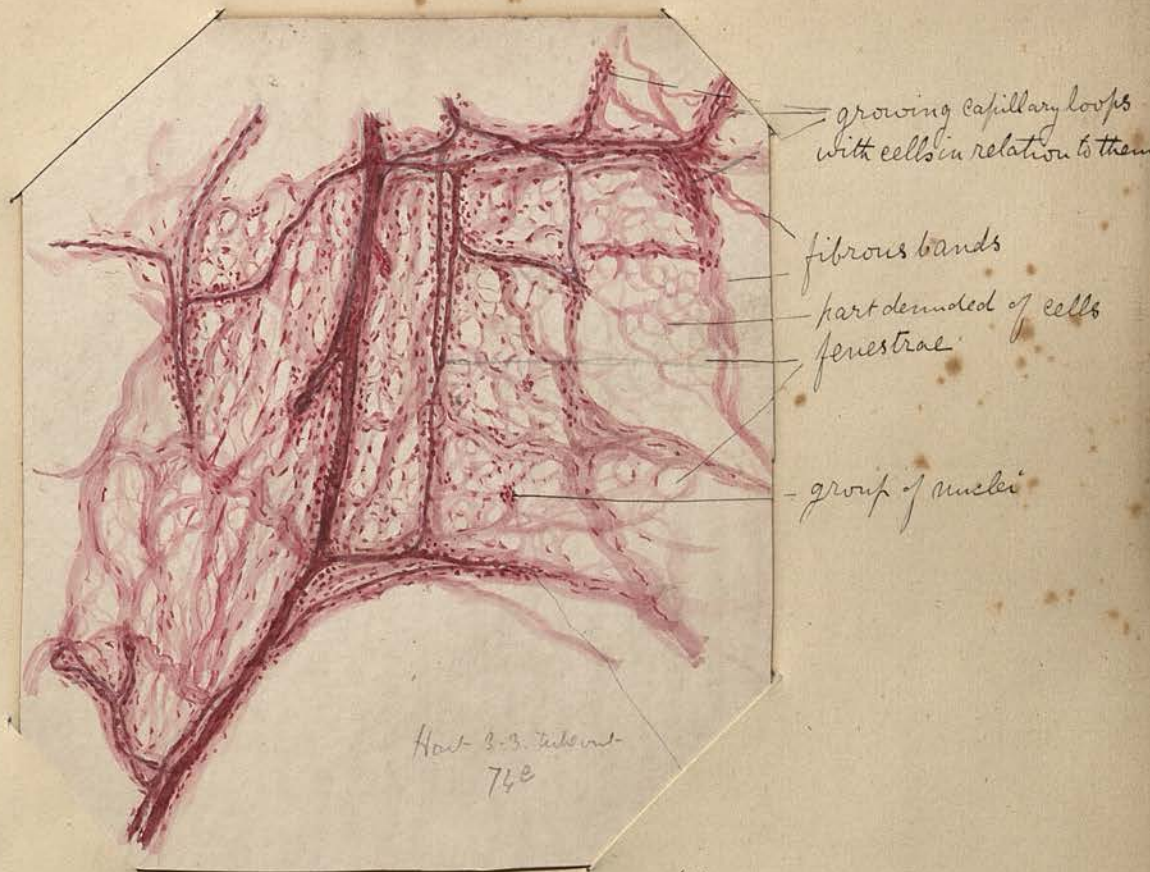
## Plate IV

Fig. 1 From case 74, age 5½ years (p. 168)  
Showing growing capillary vessels usually in the form of loops sometimes terminating in single vessels and pushing their way along fibrous bands. These loops form ultimately the pairs of vessels - arteriole and venule that are always found lying side by side, and are to be contrasted with the large open loops in Fig 2 Plate I in which is seen one of the modes of formation of the single capillaries which lie in the "Secondary trabeculae."

Fig 2. From case 45, age 6½ years (p. 169)  
Growing capillary loop, seen under a high power. The two vessels cross and each divides, one division of each pairing with one of the other; after travelling about 200  $\mu$  <sup>each pair</sup> they unite to form two terminating loops. From the bend of one, however a delicate capillary is seen passing further along the fibrous band. The nuclei of the endothelium of the capillaries are seen but there are no "voso-formative cells" either at the sides or extremities showing an arrest in development.

The fenestrae even at this age, are angular

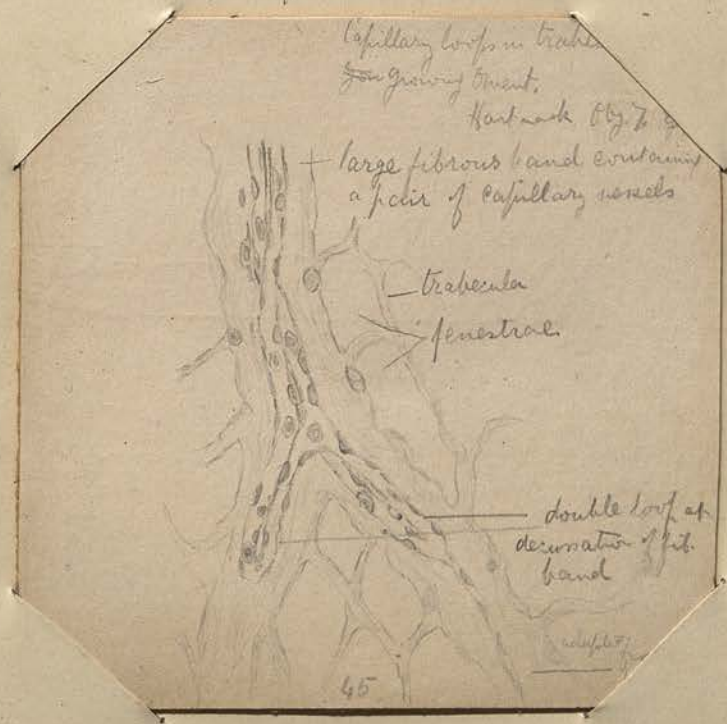
Fig 1



Hartnack Oc. 3 tube out  
74e

Hartnack Oc. 3 Obj. 3 tube out x 60  
Stained with Carmalum Hematoxylin Glycerine

Fig 2



45

Hartnack Oc. 3 Obj. 7 x 240

## Plate V

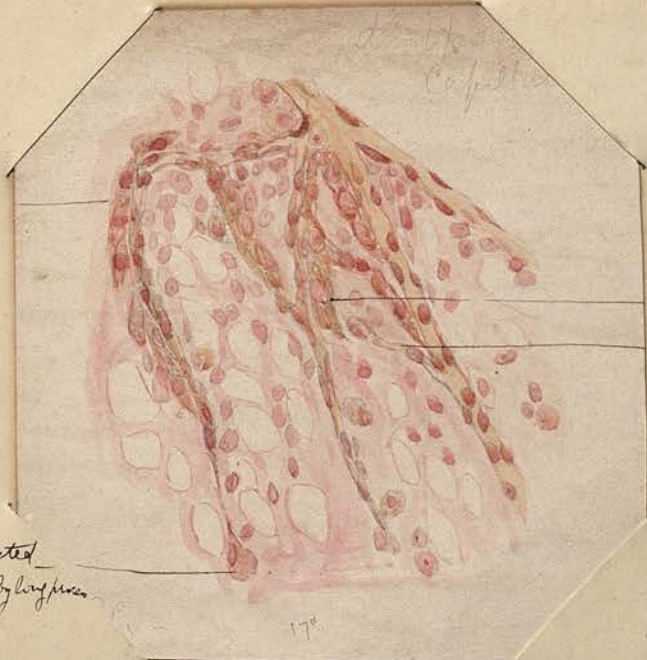
Fig 1 From case No. 17, age 2 years. (p 148)  
Growing Capillaries. Chains of large granular cells - vasco formative - are attached either to the side or extremity of a fully <sup>formed</sup> growing capillary, in several of these a channel is beginning to form. At one place a large granular cell is connected by a long delicate process to the extremity of a developing capillary. Alongside some of the capillaries are rows of similar large cells, which in this specimen gave all the capillaries a ragged appearance with the low power. In many of these cells at other places there were droplets of fat of various sizes. The fenestrations are rounded. (p 62)

Fig 2. From case 16, age 3 years (p 154)  
Here two capillaries join at an angle and at the point of junction a tapering bud projects, formed by a cell the commencement of capillary development in a new direction. Alongside the capillaries are numerous cells similar to those in the ~~above~~ Fig 1

Fig 3 From case No. 36, age  $4\frac{3}{4}$  years. (p 166)  
Capillary loop similar to those in Fig 2 Plate IV, only rising at right angle from a "capillary" venule and arteriole, called capillary because the vessel corresponding to and continuous with an arteriole, is notstricted there being no muscle cells in its wall.

Fig 1

large granular cells  
outside capillary



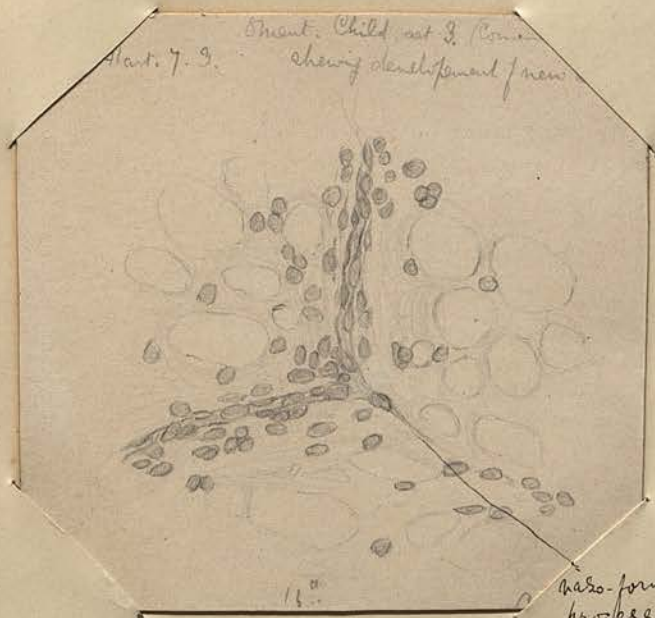
Chain of vaso formative cells  
similar chain apparently been  
channelled

vaso-formative cell connected  
with extremity of capillary, by long process

Hartnack Oc. 3 Obj. 7 x240  
Picro Carmine Staining

Fig 2

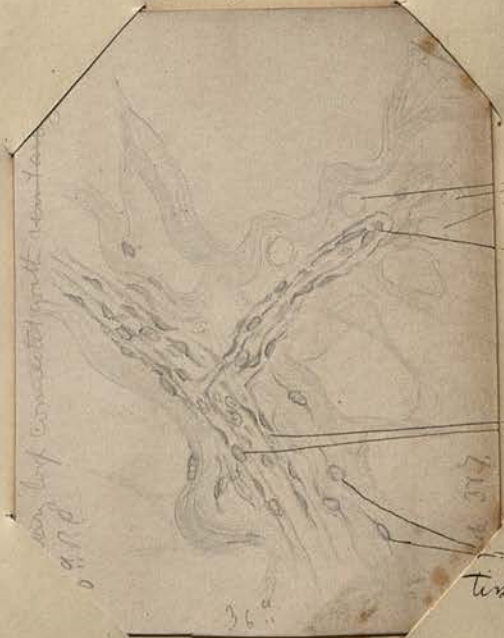
Mount. Child, Oct 3, Conn.  
Hart. 7. 3. showing development of new



vaso-formative  
process

Hartnack Oc. 3 Obj. 7

Fig 3



small  
fenestration  
Capillary  
look  
papilla  
arterio  
connective  
tissue cells

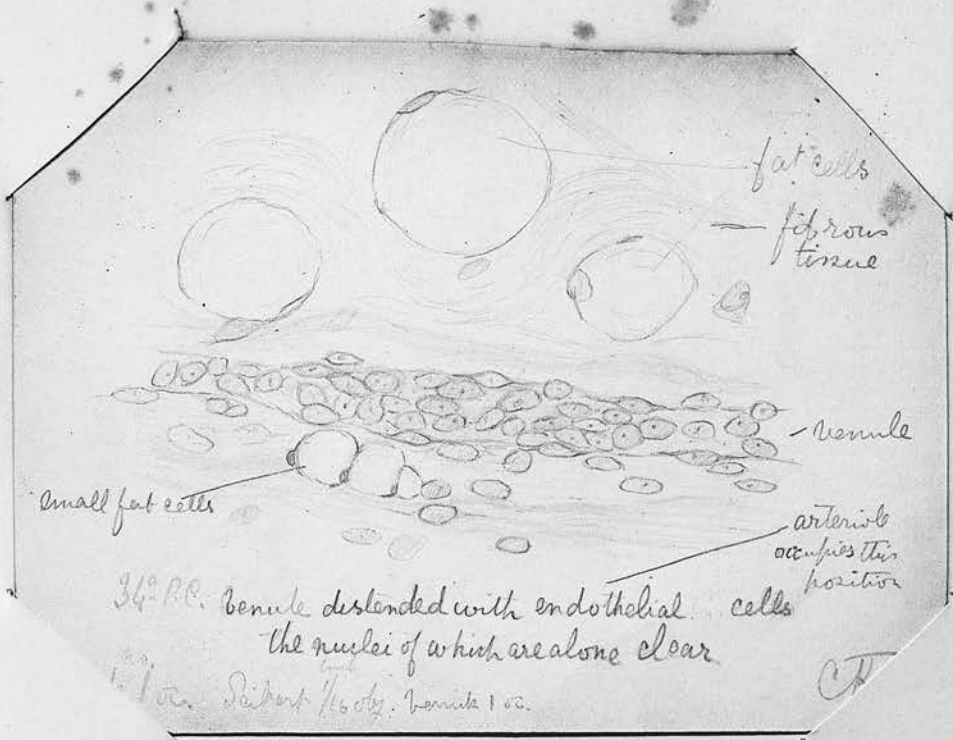
Hartnack Oc. 3 Obj. 7

## Plate VI

Fig 1. from case 34, age 11 years. (p. 176)

venule distended with large elliptical nuclei like those of the endothelium lining it, probably resulting from proliferation of that endothelium and forming a stage in the increase of size of the venule. At the point where these nuclei occur the venule is as wide again as at either end. (p. 71)

Fig 7



34 P.P. venule distended with endothelial cells  
 the nuclei of which are alone clear  
 1/10 in. Siebert 1/16 obj. venule 100.

Verrick's Oc 1. Siebert's 1/16 inch Obj. about X800

Plate VII

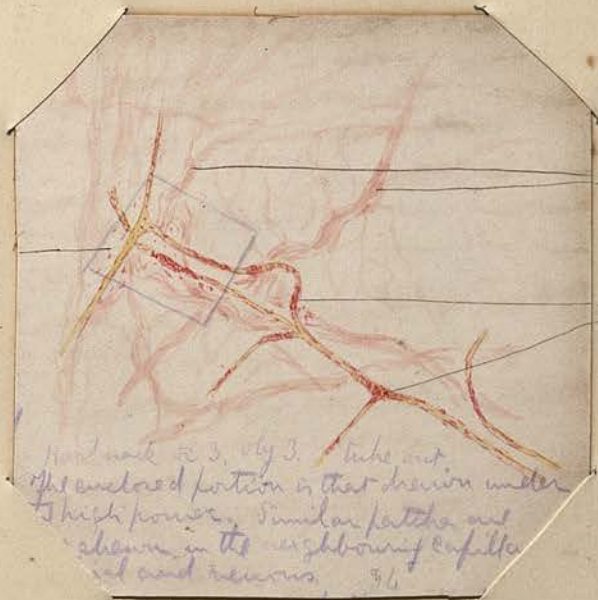
Fig. 1 and 2. # Low and high power drawings from Case N. 34, same as Plate VI.

Fig. 1 shows the cellular collections as dark stained patches at pretty close intervals in the capillaries and the absence of any cellular increase outside the vessels at these points.

Fig. 2 shows exactly the same appearance in the vessel as Plate VI. (H. 176 & 71)

Fig 1

This enclosed part is drawn under a higher power in fig. 2



fibrous bands

parts of vessel containing collection of nuclei

Hartnack Oc 3, Obj 3. tube out of enclosed portion in that direction under high power. Similar patches are shown in the neighbouring capillary and neurons. 96

Hartnack Oc 3, Obj 3. tube out x 60  
Picro Carmum staining

Fig 2



c. t. cell

endothelium of capillary

Hartnack Oc 3 Obj 7 tube out - slightly enlarged with perforation of endothelium in capil  
Mada. J. 96

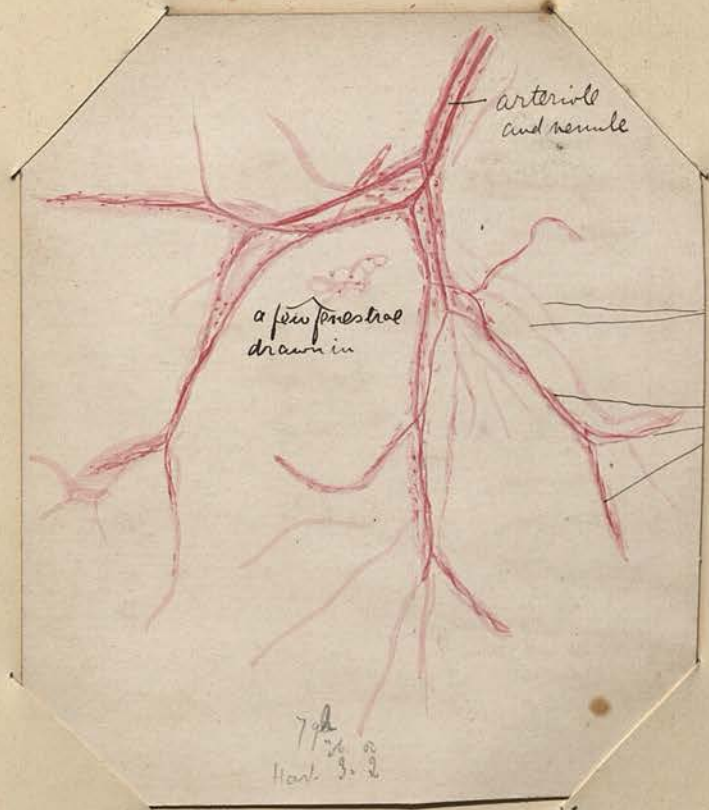
Hartnack Oc 3 Obj 7 tube out slightly enlarged about x 400

Plate VIII

Fig 1. From case 79, age 3 years. (p 156)  
Only the vessels are drawn with a few of the principal fibrous bands. A venule and arteriole are seen dividing and subdividing, their ultimate divisions forming loops; these divisions twist on themselves, forming a spiral arrangement which is sometimes from right to left sometimes from left to right. The twists are closer together near the termination of the loop. As the vessels grow, these parts increasing in length unwind the twists to a certain extent, or rather place a greater interval between them (p 60)

Fig 2. From case 78, age 22 mos. (p 146)  
Shewing a few vessels similar to the above. The membrane between them is perforated by numerous small round openings and the nuclei of a few endothelial cells remain still in contact

Fig 1



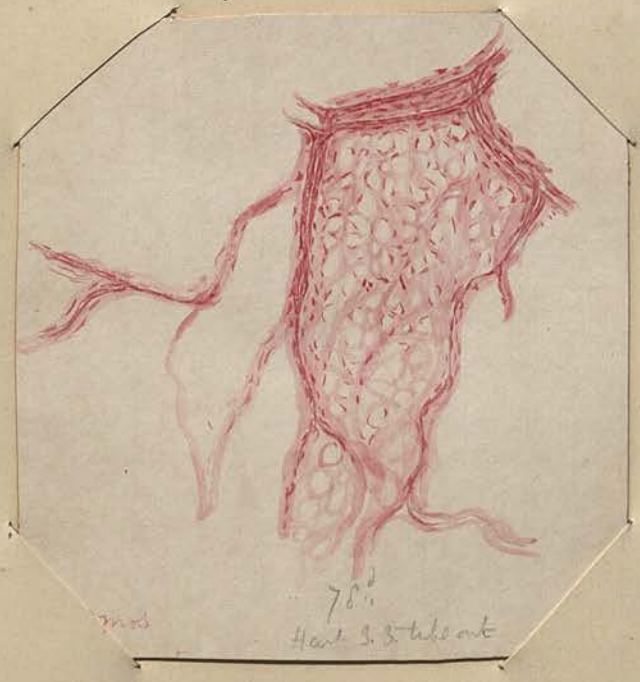
arteriole and nerve

fibrous bands just indicated

capillary loops twisting on themselves

Hartnack Oc 2. Obj 3 about X40  
 Posinated Hamatoxylin Glycerine

Fig 2



78  
 Hart 3.3 take out

Plate X

Fig 1. From case 16, age 3 years. (p 154)  
Large granular cells outside capillaries at point  
of junction  
(Page 154 of Thesis)

Fig 2. From case # 18 age 2 1/2  
Similar cells in same position, only in addition some  
contain, each a single large fat globule surrounded  
by a complete layer of protoplasm of considerable size  
the nucleus being at one side. In both 16 and 18  
blood vessels are in state of active growth and so are  
the fat cells and there is no difference in appearance  
between the vaso-formative cells and the fat tissue  
formative cells, or for that matter the so called "endo-  
thelioid cells" of tubercle. (see Plate V. fig 1)  
(p 151) (p 65)

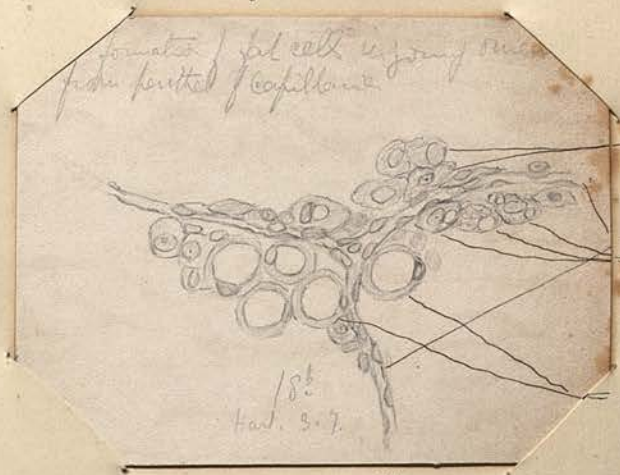
Fig 3. From case 44, age 18 (p 179)  
Showing fat cells in rows along side vessels, and also  
separating the arteriole and venule at one place.  
Fat clumps of a dozen cells or so, and also solitary  
fat cells on the single capillaries

Fig 1



Hartnack Oc. 3. Obj 7

Fig 2



Hartnack Oc. 9. Obj 7 X240

Fig 3.

large granular cells  
capillaries  
large granular cells containing small oil globules  
fits with large oil globule in cell

fibrous band with arteriole and venule and fat cells outside and between the vessels

Small groups of fat cells on capillaries

isolated fat cell



424

about X50

Plate XI

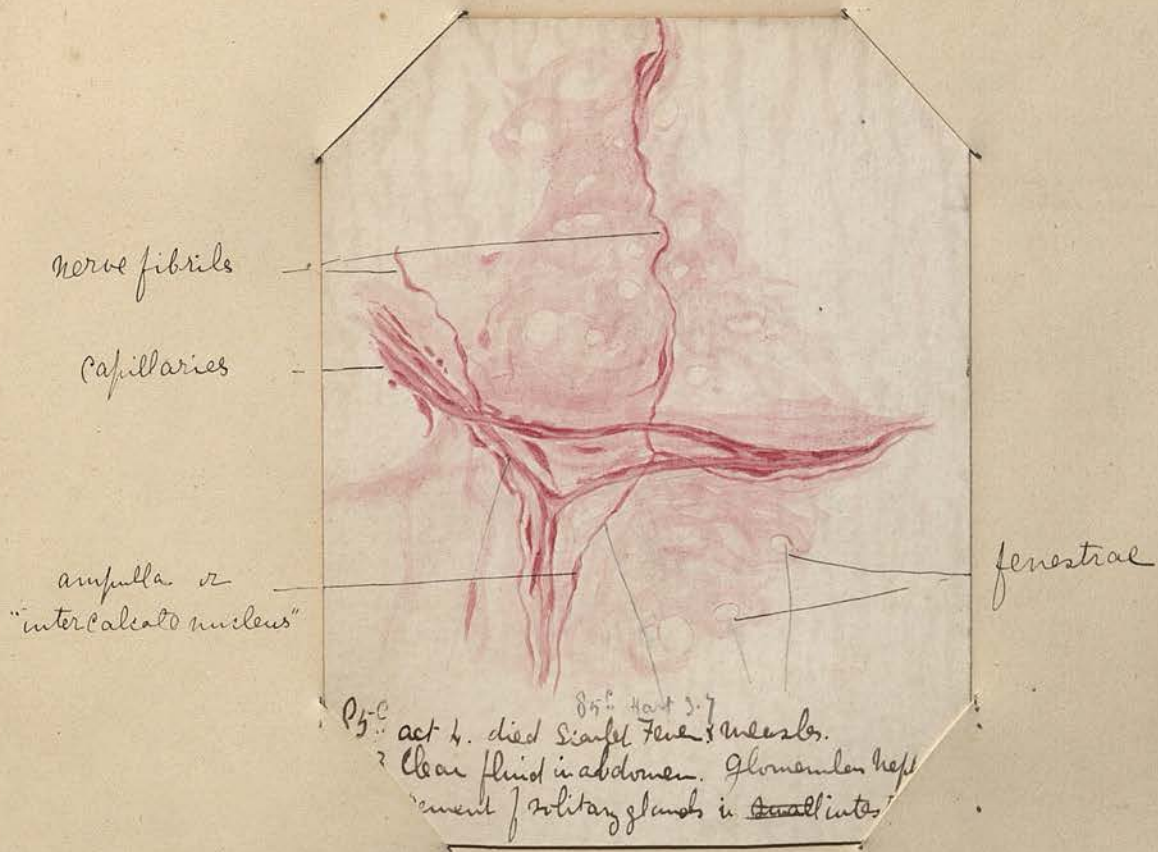
Fig 1. From case 85, age 4 years (p 160)  
Nerve fibrils lying alongside capillaries, one, at the  
upper part of the drawing leaving the vessels.  
The fibrils have thickenings at intervals - ampullae -  
some of which are larger than the rest and like nuclei  
- intercalate nuclei. The Fenestrae are very minute  
rounded openings, some not more than four or five  
microns across, just as if produced by the passage of a  
wandering cell through the membrane (Ranvier)  
Endothelial cells are quite poor. A few connective  
tissue cells lie alongside the nerve fibrils, at  
wide intervals

(pp 45-48)

Fig 2. From same case, though different part of  
Omentum, under a power of about X 800

The varieties of swellings on the fibrils are better seen  
some appear to be merely flattenings. Junction is effected, <sup>between fibrils</sup>  
by what looks like branching connective tissue cells.  
One fibril terminates in two minute branches.  
There are several C. T. cells with long processes  
which however cannot be traced to nerve fibrils.

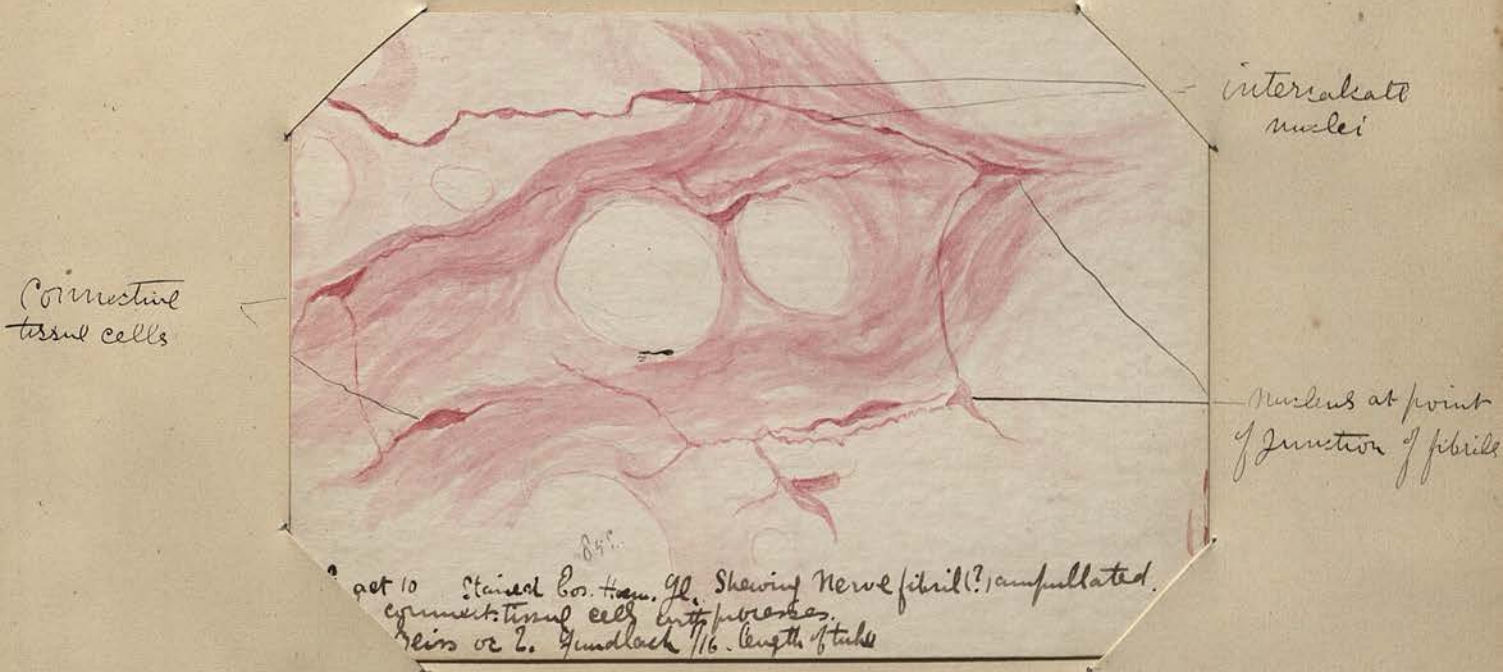
Fig 1



act 4. died Scarlet Fever  
 ? Clear fluid in abdomen. Glomerular nephritis  
 ? element of solitary glands in small intestine

Hartnack Oc 3. Obj 7 X240

Fig 2



act 10 Stained Co. Hem. G. Showing nerve fibril(?) ampullated.  
 connective tissue cell with processes  
 Zeiss or Z. Gundlach 1/16. length of tube

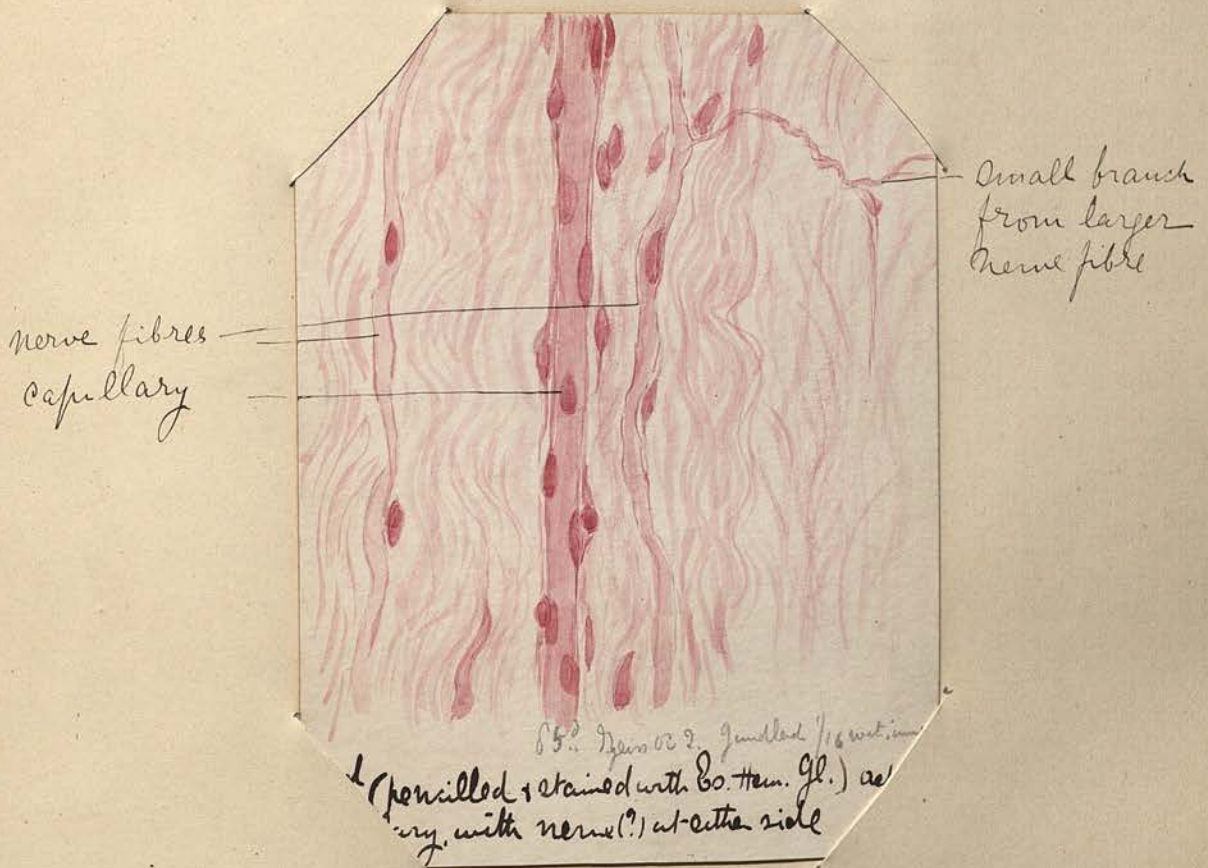
Zeiss Oc 2. Gundlach 1/16 immersion about X 800

Plate XII

Fig 1. From same case as two preceding drawings. The membrane was pencilled before mounting. Nerves of larger size, about  $4\mu$  broad, like flattened bands, with a nucleus occasionally outside occasionally apparently inside but causing no distinct swelling at the point. At the upper right hand corner is a minute ampullated branch given off. It is to be noted that there is one of these nerve fibres on either side of the capillary.

The nuclei of the capillary endothelium are seen and also connective tissue cells parallel with the vessel forming a pretty complete chain - Perithelium (p 45-48)

Fig 1



Geiss's Oc 2. Gundlach 1/16 inch immersion  
about X800.

Plate XIV From Case 6, Diabetes and Nephrosis, emaciation (p 209)

Fig 1. Low power drawing. Large fibrous patches with numerous black points (osmic acid staining) showing presence of fat.

Fig 2. Low power photo. Fibrous ~~pa~~ band containing arteriole and venule. The arteriole has an irregular course as compared with the venule and ~~its~~ walls seem rigid. Numerous black points between the vessels and also in the fibrous tissue on either side. Similar points in a round fibrous patch at the right hand side.

Figs 3 and ~~four~~ 4. ~~Low~~ High power photos. Arteriole at one side (a), outline of nuclei of muscle cells clearly seen. Considerable breadth of fibrous tissue separating the arteriole from fenestrae. In this fibrous tissue are some tortuous capillaries. Scattered pretty equally through the tissue are cells containing fat globules of various size (black - osmic acid). Some occupy nearly the whole cell, but none distending it, like the fat in the ordinary fat cell, in others a few little droplets round the nucleus. A few small black points are seen in the arteriole.

Fig 5. High power drawing showing same things as 3 and 4. Capillary network among the fat containing cells more clearly seen.

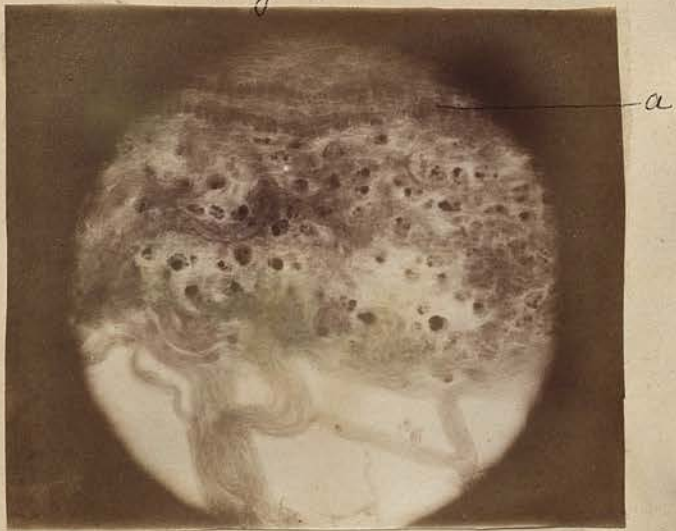
See description of case p. 209 and p 75-80 of Thesis.

Fig 2



About X200

Fig 3



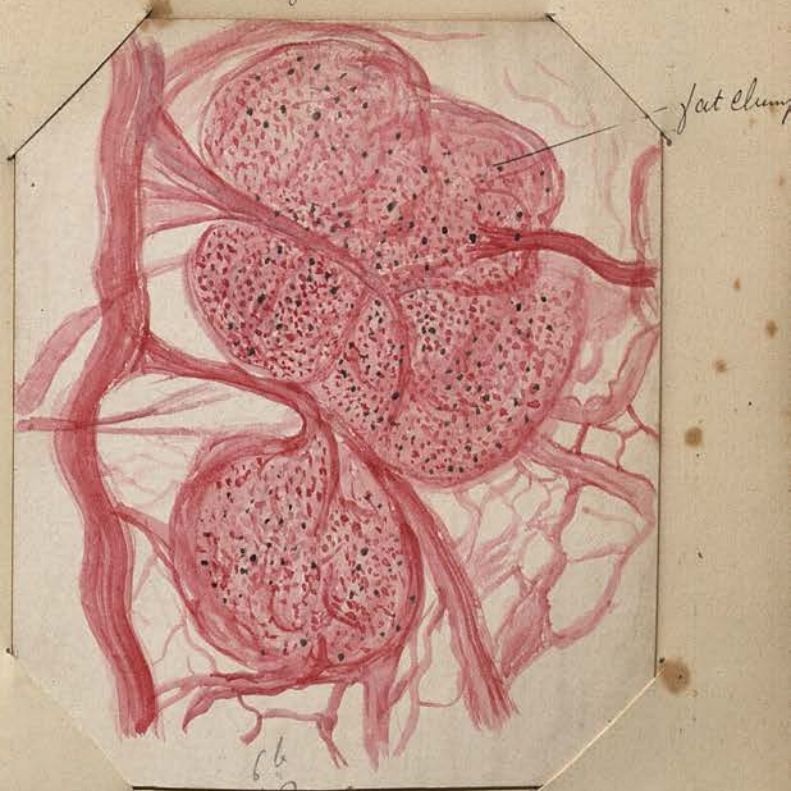
About 200 X

Fig 4



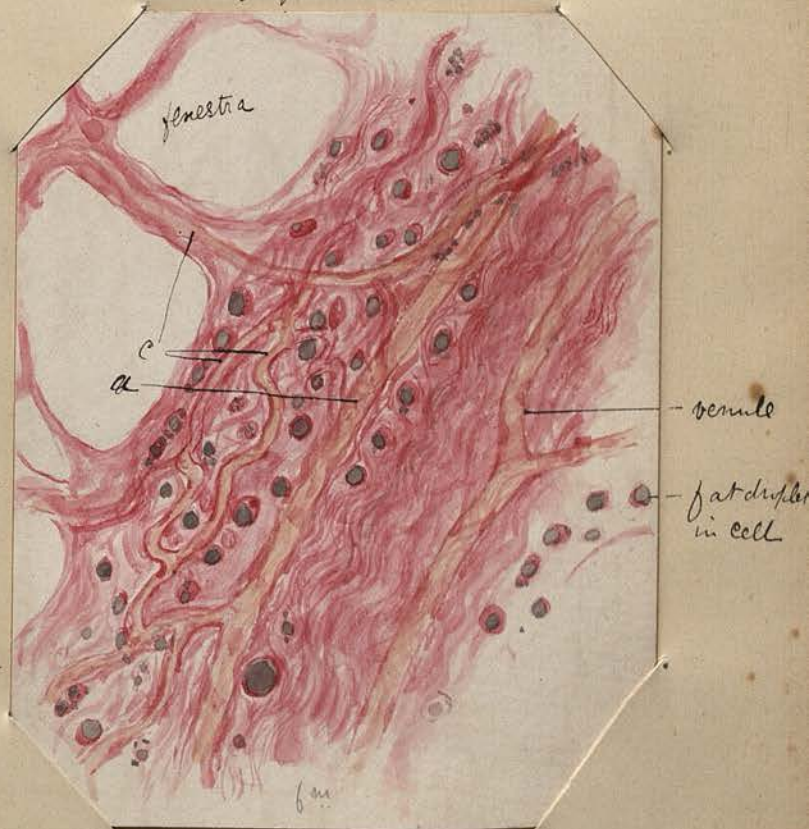
About X200

Fig 7



Hartmark Oe 3. Ob 3. X50

Fig 5



Hartmark Oe 3 Ob 7. 260  
Picro. Carminum and Osmic Acid

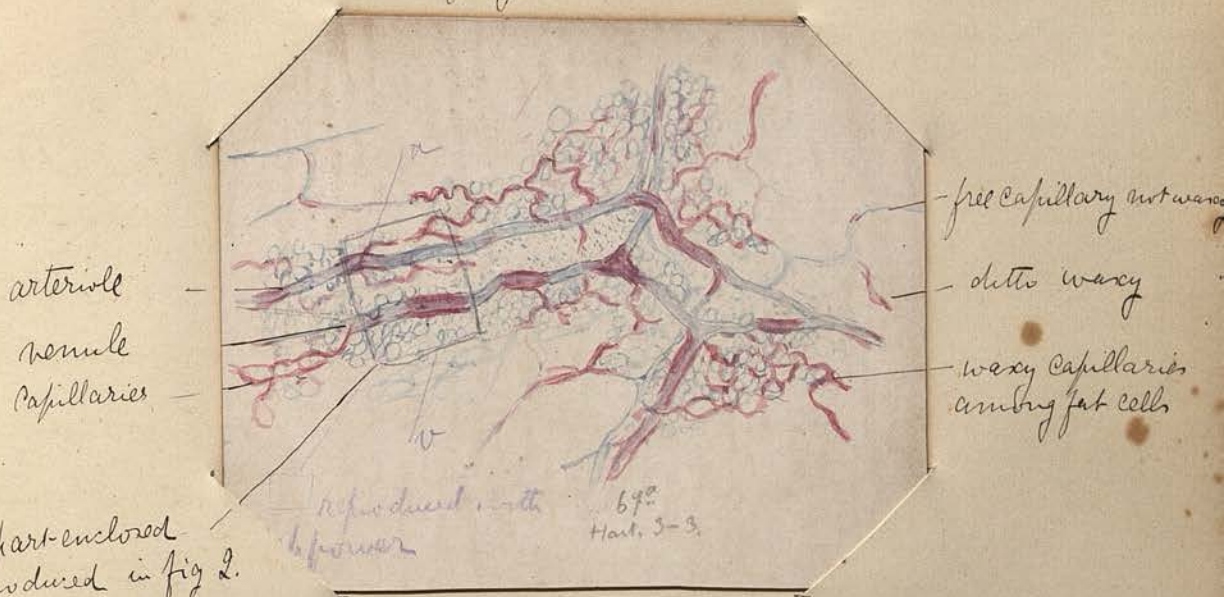
All three photos from specimen stained only with Osmic Acid and mounted in Glycerine

Plate XVI. From Case No 69, age 7, Rickets, Caseous mass,  
in lungs - general waxy disease (h 187)

Fig 1. Low power drawing Meth. Violet staining  
Pink - waxy staining in arteriols, venules and capillaries  
In this particular part it happens that the venule is more  
extensively affected than the arteriols, but that is exceptional  
Notice slight thickening at waxy points. Capillaries  
waxy right up to larger vessels but often joining parts  
that are not waxy. In one ~~area~~ place the venule is  
waxy where it is not apparently connected with any capillary  
networks of waxy capillaries among fat cells.

Fig 2. High power drawing of part <sup>of fig 1</sup> enclosed by a  
square - pencil mark. In waxy part of arteriols, there  
are little blue points range along the sides enclosed by  
pink circles - these are non-waxy muscle cells, seen  
also in the non waxy part of the arteriols. In the venule  
the blue (non-waxy) endothel. nuclei are seen, as also  
in the arteriols & capillaries. In the left hand lower  
corner, are fat cells whose walls appear to have taken  
on the waxy stain, but it will be noticed that these  
lie right over the venule which they obscure, and which  
is becoming waxy just as it disappears: and so that  
this appearance is probably produced by reflection from  
the venule.

Fig 1



arteriole  
venule  
capillaries

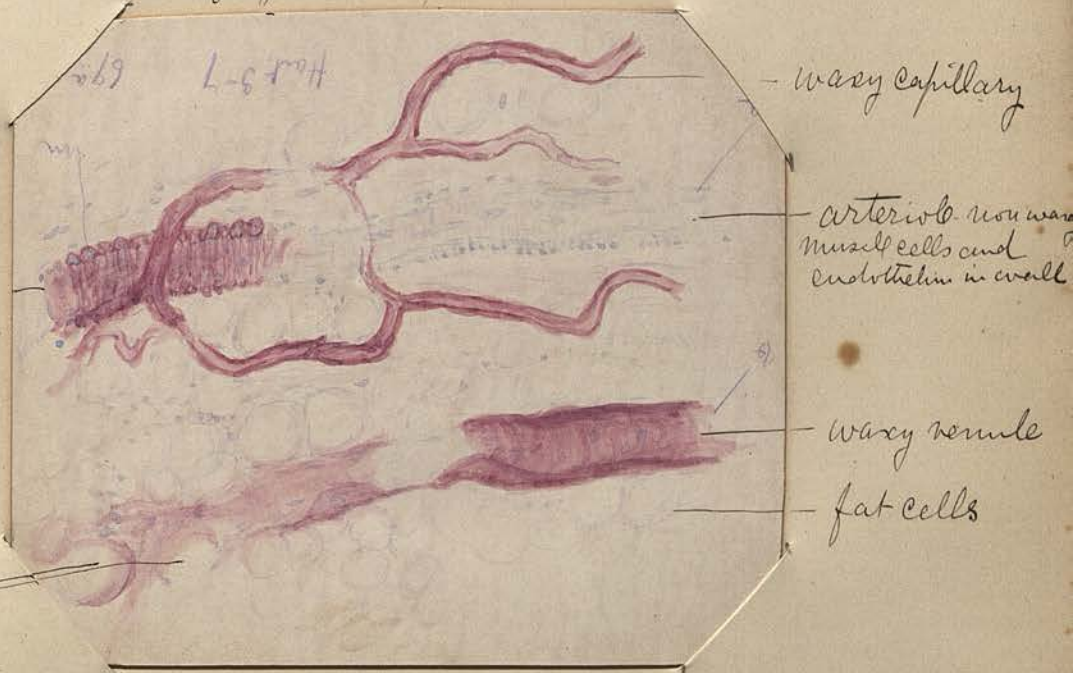
free capillary not waxy  
ditto waxy  
waxy capillaries  
among fat cells

The part enclosed  
is reproduced in fig 2  
under a high power

reproduced with  
high power  
67°  
Hartnack 3-3

Hartnack Oc 3. Obj 3. X 50

Fig 2



arteriole  
waxy part

waxy capillary  
arteriole non waxy  
muscle cells and  
endothelium in wall

fat cells with  
waxy tinge

waxy venule  
fat cells

Hartnack Oc. 3. Obj. 7 X 240  
Methy aniline violet staining

Fig 3. on opposite page

Plate XVII

Fig. 1 from case 69 (same as figs 1 & 2 of last plate)  
Only the vessels have been drawn - the fenestrated  
membrane is as usual.

Capillary network quite free from fat cells  
and much sparser than that in the fat clumps  
The capillaries are affected indifferently at their  
junction with ~~the~~ venule & arteriole.

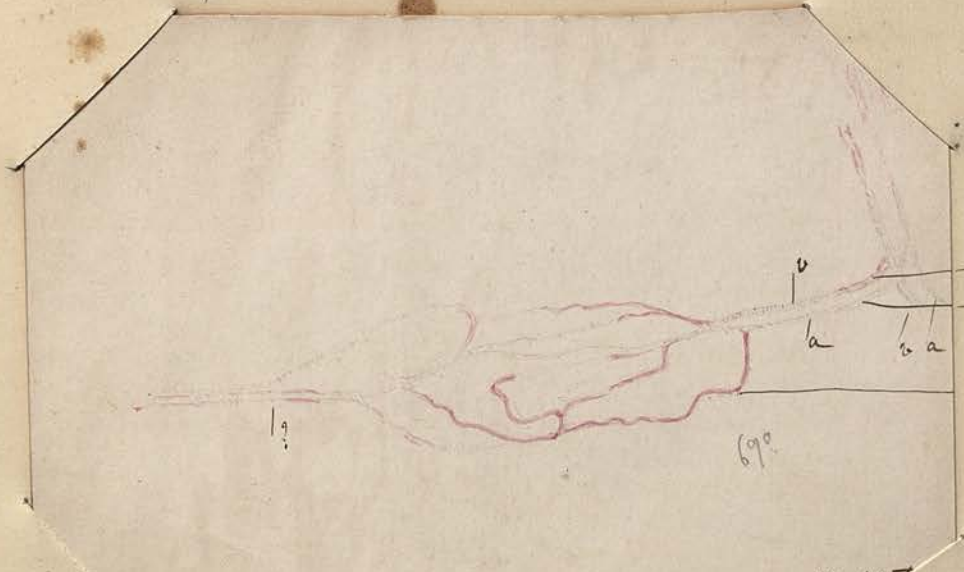
Fig 2. From case No 91. (Phthisis - Waxy (p. 195)  
disease in organs. Bronchi & pulmonary vessels waxy  
Hepatic vein waxy down to Inferior vena)

Arteriole waxy in nearly its whole length  
Only a faint waxy tinge in the venule here & there  
Capillaries <sup>waxy</sup> in fatty tissue close to the venule as well  
as to the arteriole. Waxy change in fibrous tissue  
between arteriole and venule

See report of cases

and p. 92-106 of Thesis

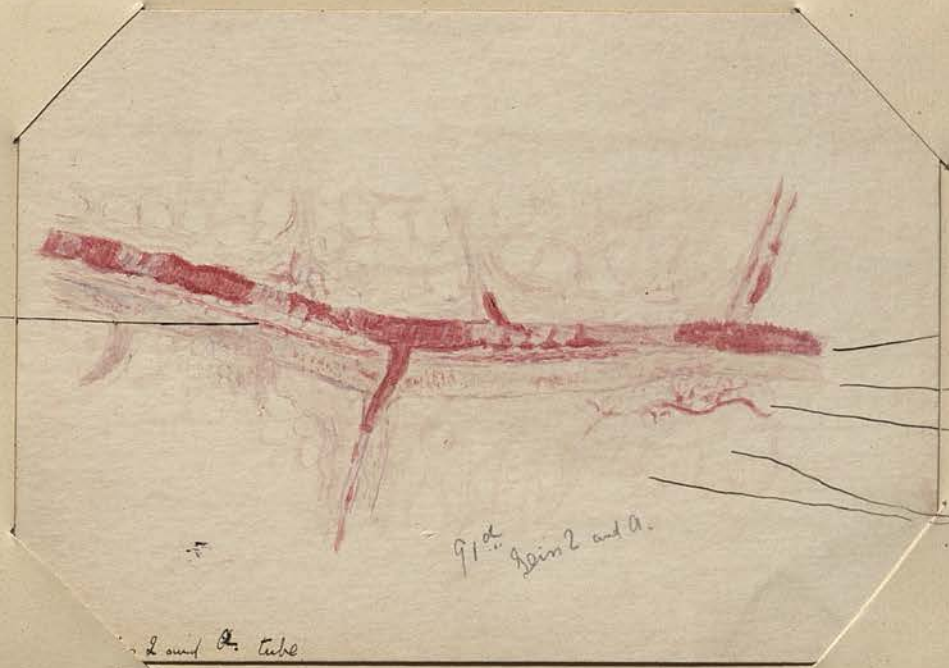
Fig 1



lillary Coch. insertion. Capillaries from a (arteriole) and v (venule) affe-  
 indifferently, and usually at point of

Hartnack 3 Oc. 3 Obj. X 40

Fig 2



waxy fibrous  
 tissue

arteriolo  
 venule  
 fat cells with  
 capillaries  
 Fenestrations

2 and 9. tube

Zeiss Oc 2. Obj a X 70

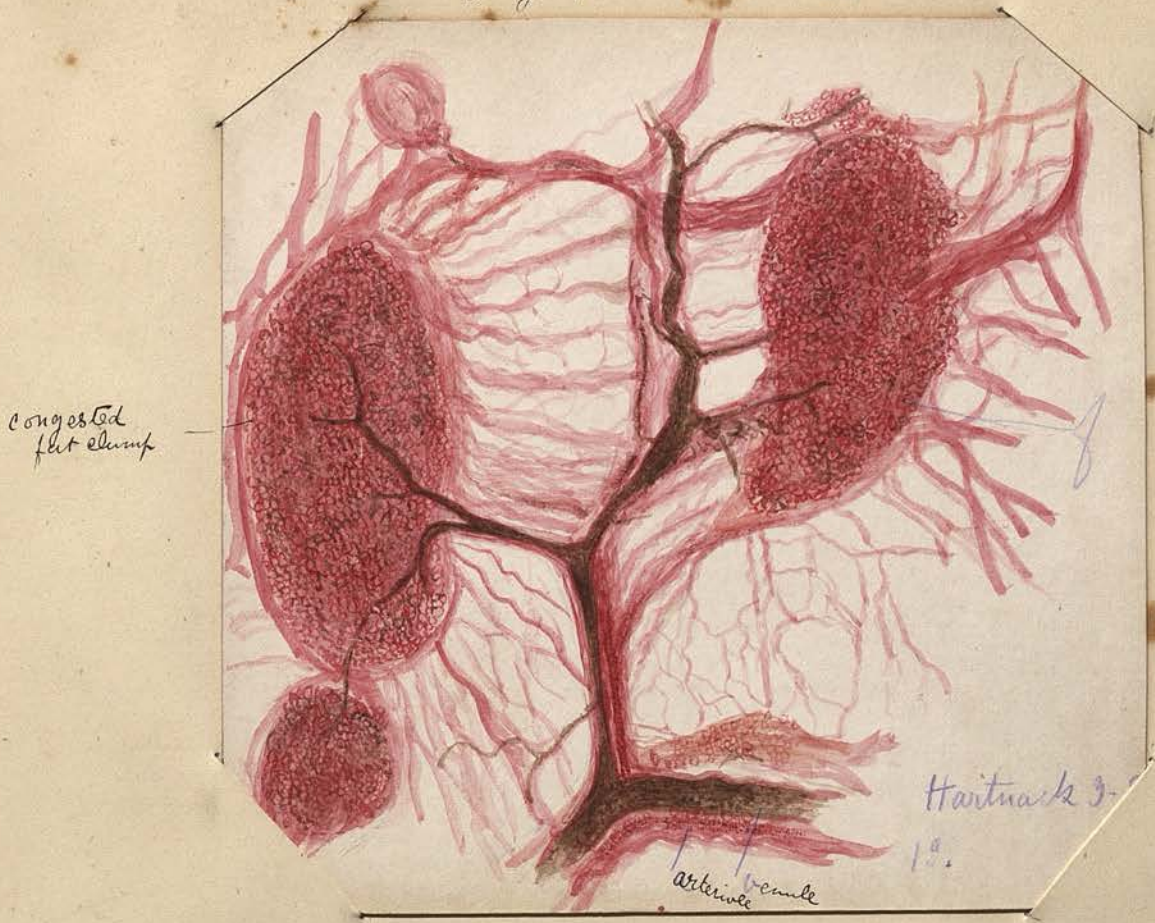
Plate XIX. From case No. 1. One of valvular heart disease and all the evidences of backward pressure

Fig 1 (Picro Carmine Staining.) Venule widely dilated there being irregular dilatations upon it. The arteriole is only visible at one point in the lower part of the drawing. The capillaries connecting the fat clumps with the venule are also dilated. In the fat clumps the fat cells are indistinctly seen, a thick fibrous capsule and a dense framework of fibrous tissue, giving the whole a very decided carmine colour. The fat cells are each surrounded by a brown ring this being the capillary in relation to it filled with blood. In this way an idea is formed of the immense vascularity of these fat clumps. They are supported by bands of fibrous tissue which spread out to form the boundaries of penetration.

Figs 2 and 3. Photos from almost exactly the same position but at a slightly different focus. In fig. 3 the individual fat cells are best seen not only in the clumps but along side the venule. The arteriole is also dilated to pretty widely, and the dilatation of the venule though greater than in the drawing, is not so irregular, probably because a venule of larger calibre

(N 107)

Fig 1



Hartnack Oe 3 Oly 9. X50

Fig 2



about X40

Fig 3



about X40

Plate XX

Fig 1. From Case 8, age ~~47~~ 46. Aortic incompetent  
cutting liver. 27oz. fluid in abdomen (p 227)

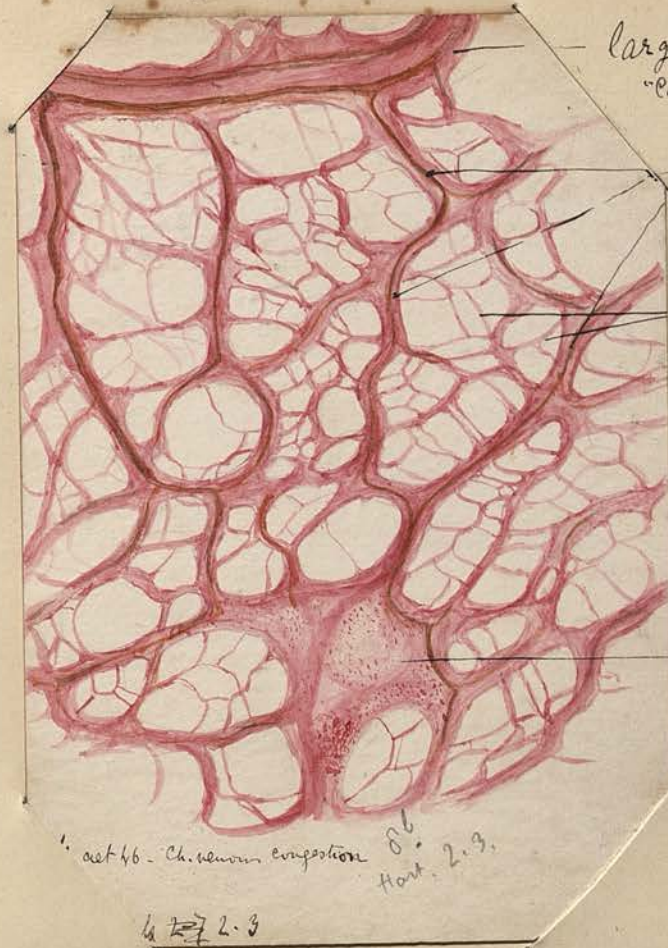
Some congestion of vessels. Intended to show the typical  
arrangement of the fibrous tissue in the adult Omentum, as  
described p of Thesis. Large fibrous band at upper  
part containing two vessels. Anastomosing single capillaries  
in "secondary trabeculae" and attached to those and  
forming the boundaries of Fenestrae, the Primary trabeculae

An impression may be formed from this of the great  
variety in thickness of these trabeculae. Some only one  
or two microns and apparently just going to give way, others  
as much as 20 microns. The secondary Trab. mostly over  
50 microns. Many of the Fenestrae 150 or 200  $\mu$  across.

There is an absence of fat, probably removed by the pressure  
of long continued congestion. (p 19-22)

Fig 2. From Case 27, age 19. Exophthalmic goitre (p 180)  
Capillary loops & blind capillaries even at this age, but  
no sign of active development. The loops and capillary  
brought clearly by distension with blood. The whole  
Omentum was congested. On one loop is the characteristic  
twist, in the other it is absent

Fig 1



large fibrous band containing  
"capillary nodule and arteriole"

"Secondary trabeculae"  
each containing a single  
capillary

- Primary trabeculae

flattened fibro-membranous  
part.

act 46. Ch. venous congestion 86  
Hart. 2.3.

4 2.3

Hartmann Oc 2. Obj 3 X 20  
slightly enlarged

Fig 2



Capillary nodule  
and arteriole

nucleus of endothelium

white blood corpuscle

capillary loop  
twisting on itself

- blind capillary

279 Hart. 2.7

Hartmann Oc 3. Obj 7. X 240

Plate XXI

From Case 59, age  $3\frac{1}{2}$  years. Tubercular meningitis. Peritoneum apparently normal. But under the microscope congestion of vessels and numerous clots.

Fig 1. Shows blood both in the venule and arteries. In the venule are curious bodies which are no doubt clots. They take on a deep brownish stain and are composed of somewhat rounded masses, irregular both in shape and size. In the part shown there is a difference in calibre of the venule, wider beyond the clot than behind it - in the course of the blood stream, but as a rule there is no noticeable difference (p 117)

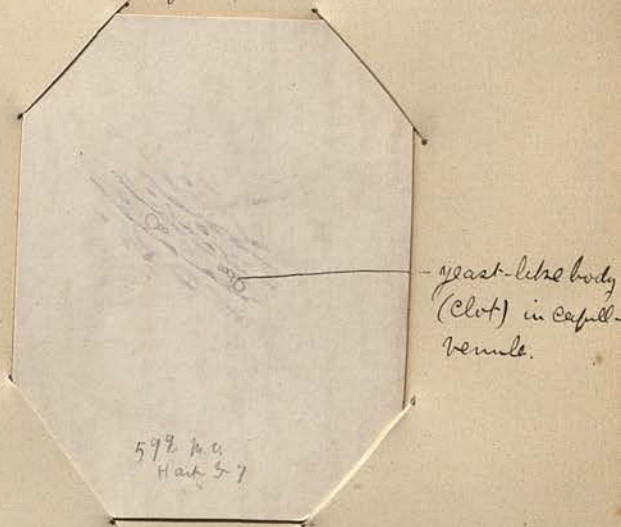
Fig 2 Shows similar bodies much smaller & not filling the whole lumen, and having a peculiar resemblance to the spores of the yeast plant. They are the same as some seen in one specimen of No. 6 - the case of diabetes - but they are no doubt in both cases, altered blood, perhaps formed post mortem.

Fig 1



Hartnack Oc 3. Ob 7 x240  
Picric Carmine

Fig 2



Methyl aniline violet

Plate XXIII

(1937)

Fig. 1. Case No. 75, age 9. Tuberculosis. Tubercle nodules in Omentum. No naked eye signs of Peritonitis.

Venule & arteriole both dilated and containing a large number of white blood corpuscles. Some have escaped outside and are lying in the fibrous tissue. The venule and arteriole each give off a branch at right angles at the same level, both of these branches again dividing to form two capillary loops which twist upon themselves. They also contain a few white blood cells.

p 116

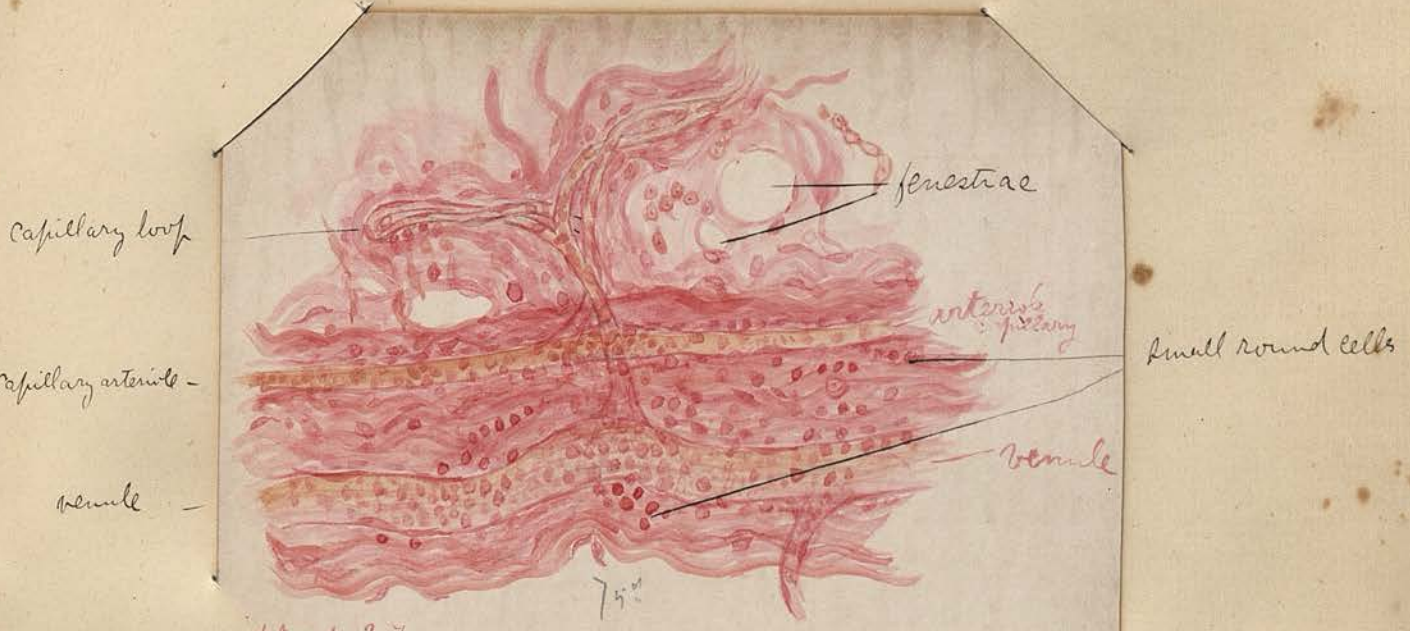
Fig 2. Case No. 62, age 10 years. (Lympho sarcoma in lung and subcutaneous tissue.)

(194)

In ~~the~~ photo two sets of capillaries, one, forming a plexus and continuous at either end with a dilated venule - not seen in photo. This set is unduly dilated each capillary 40 or 50  $\mu$  wide, and surrounded by a good many cells. The other set consist of a series of capillary loops which contain no blood & look very small alongside the others, the loops ~~most~~ have the spiral arrangement seen in Plate Fig.

There are a good many such congested patches in this specimen & the venules are all dilated

Fig 1

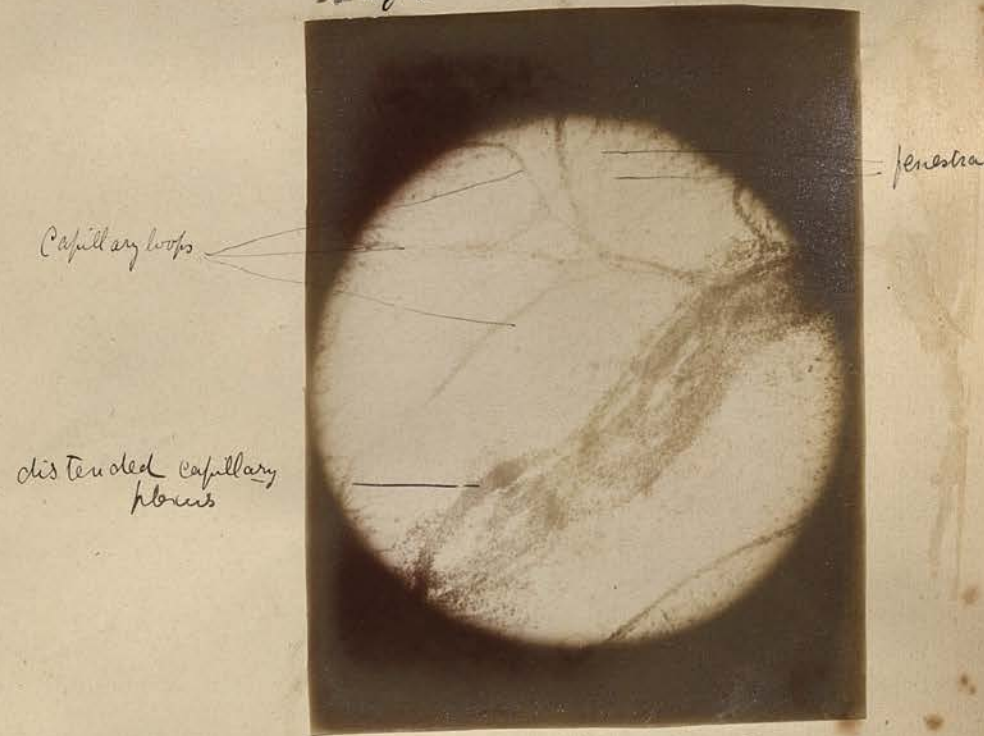


Hutchinson 3-7

May 1899. n. t. tuberculosis. Tubercle in Birkman. No naked & keratinites

Hutchinson Oc 3. Obj 7 x240  
Picro Carmine

Fig 2



62 about X20.

Plate XXIV.

(p 167)

Fig 1. From case No 60. age  $5\frac{1}{2}$  years. Commencing peritonitis from perforation in convalescent typhoid.

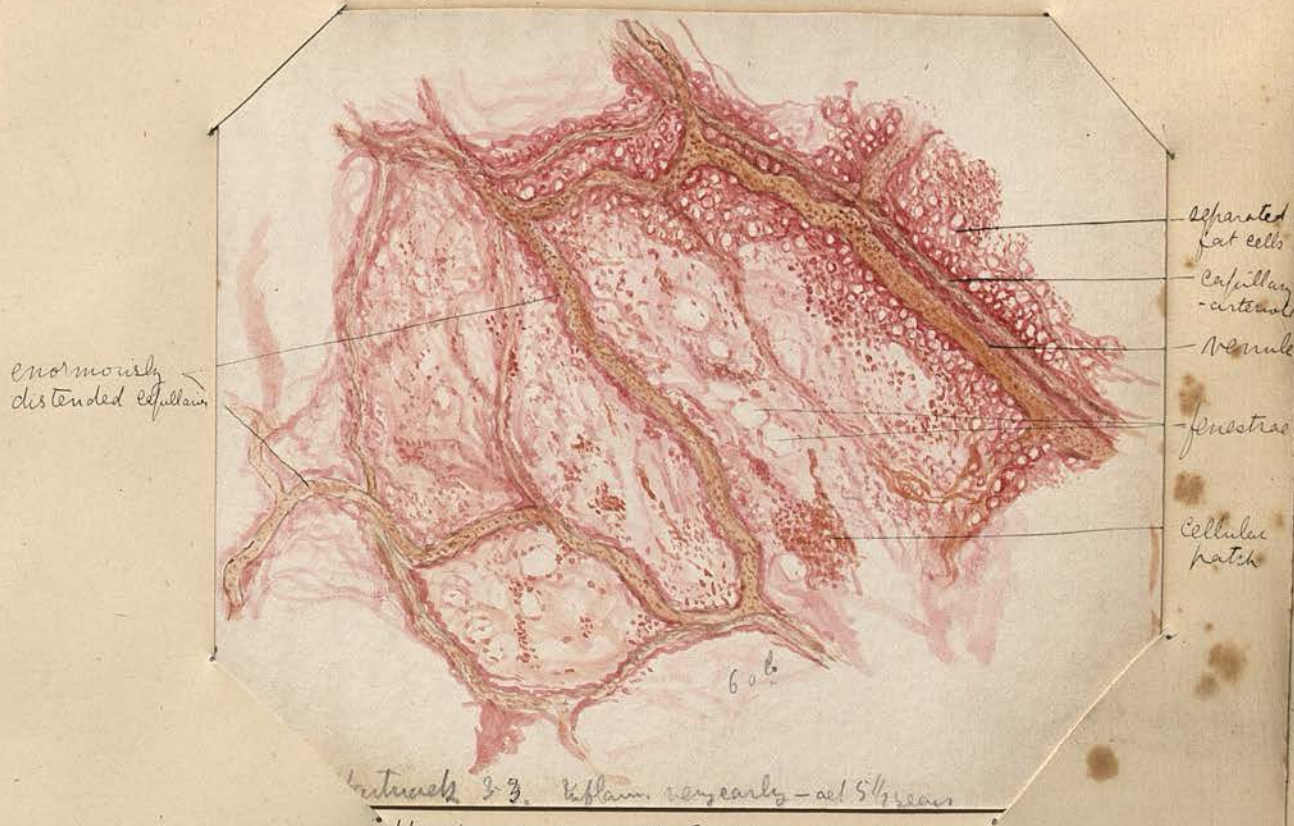
Venule & capillaries connected with it, enormously dilated. A few cells outside the vessels. Fat cells separated and partly obscured by swollen fibrous tissue, not much exudation among them. Membrane bare of endothelium but a few fibrinous & cellular patches lying on it. Fenestrae small and round.

Fig 2. From same case. A capillary loop twisted on itself and distended with blood; a capillary arising from its extremity contains a few blood cells just at its origin. (p 116)

Fig 3. From case No 51, age  $4\frac{1}{2}$  years. (48 oz. turbid fluid in abdomen. Kidneys apparently in first stage acute Bright's) Drawn for Dr. Woodhead's Practical Pathology.

Showing white blood cells inside & outside the vessel. Evidence of diapedesis. Collections of nuclei on membrane. Fenestrae small and round (p 165)

Fig 1



fenestrae 2-3. inflam. very early - aet 5 1/2 years  
 Hartnack Oc 3. Oly 3 Tube out X60  
 Picrocarmine

Fig 2

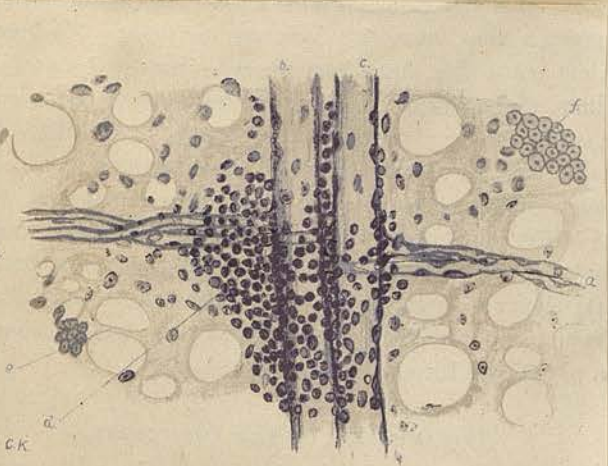


FIG. 101.—Early inflammation of peritoneum. Stained with logwood. (x 300.)  
 a. Capillaries, arterial and venous.  
 b. Larger venule.  
 c. Larger arteriole.  
 d. Accumulation of leucocytes at the angle formed at the junction of a. and b.  
 e. Fibrous trabeculae of peritoneum.  
 f. Endothelial cells, proliferated and detached from trabeculae.

Fig 2



disended capillary loop with coagula  
 inflam. recent.  
 Hartnack Oc. 3. Oly 7 X240  
 Logwood

Plate XXV

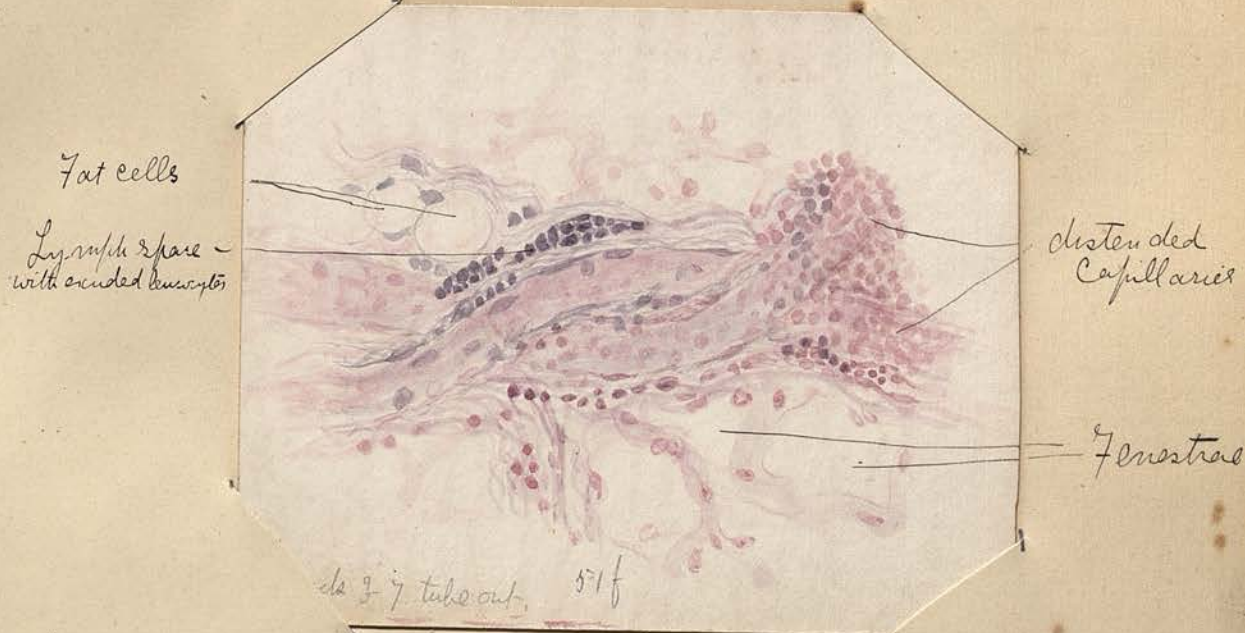
(p 165)

Fig 1. From same case as Fig. 2. Plate XXIV.

Capillary loop with complete twist. Both vessels distended with blood, and on the right hand side numerous white blood cells are seen in and around the vessels, and at three places the leucocytes are collected in clearly outlined lymph spaces.

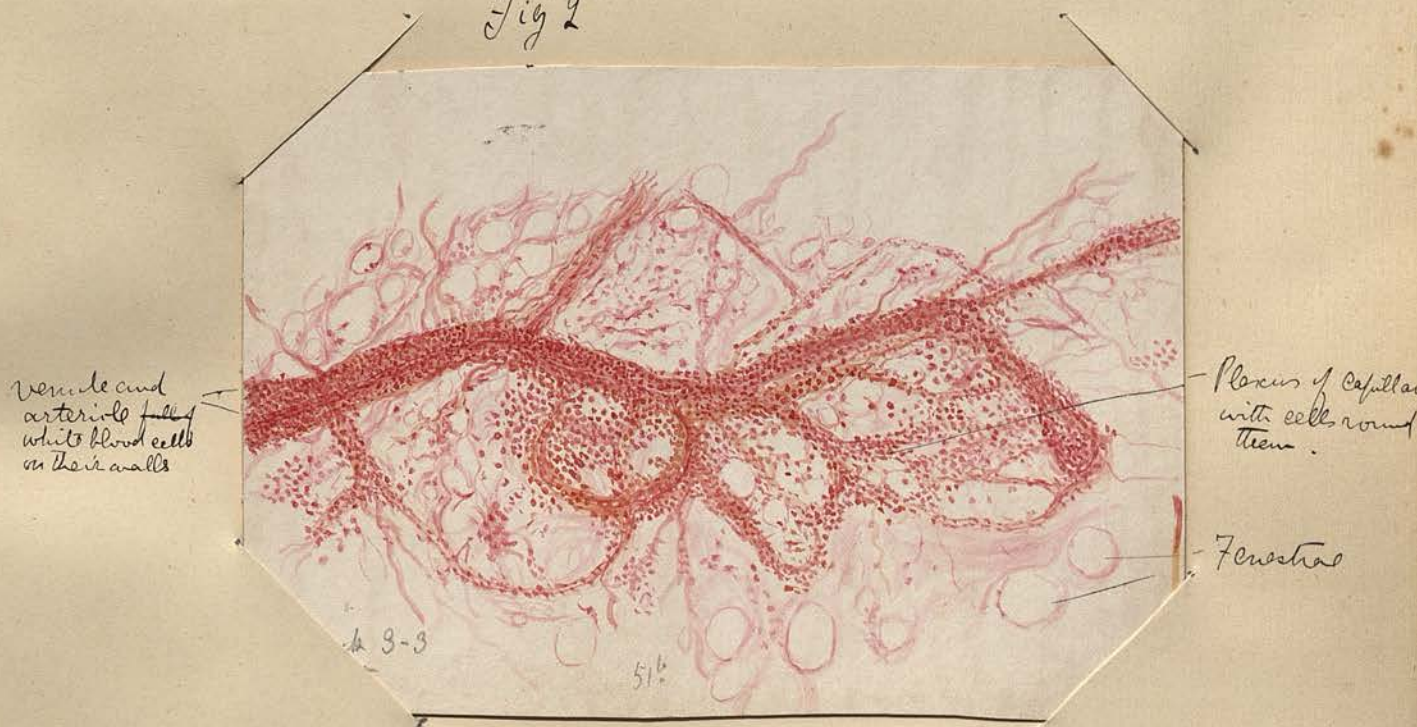
Fig 2. Low power drawing from same case. Distended vessels and numerous cells in relation to capillary network, the appearance in that respect is much the same as in Fig 1 ~~of~~ Plate XXIV, only the cells when examined with a high power are not so large, though certainly as a rule, larger than unaltered leucocytes.

Fig 1



Hartnack Oc 3. Obj 7 tube out. X280  
Logwood staining

Fig 2



Hartnack Oc 3 Obj 3 X50  
Picro carmine staining

Fig 4

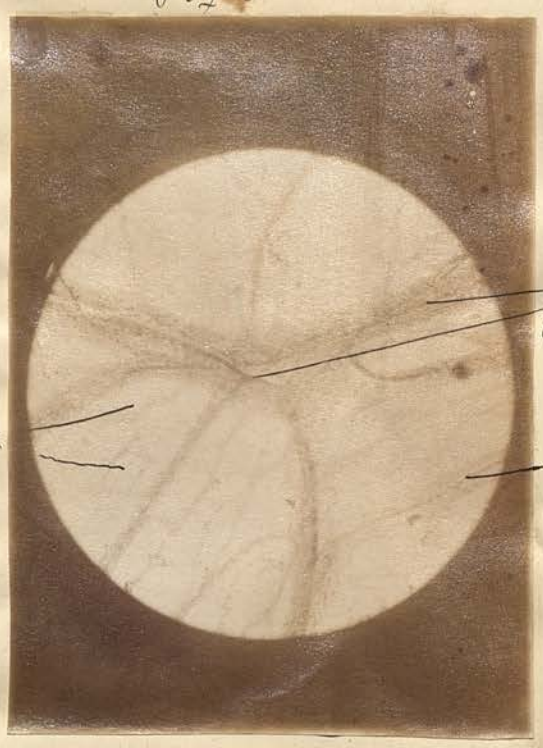


Capillary  
filled with  
large cells

Fenestral

about X25

Fig 5



Capillary  
with large cells

unaltered  
Capillary

about X25

Plate XXVII.

(p 200)

Figs 4 and 5, from other parts of the same specimen as Fig: 1, 2 & 3. Shewing; Capillaries at points for a considerable distance in their course dark and thickened, these parts on examination with a high power, were seen to contain numerous large irregular cells, deeply stained, ~~like~~ as if produced by proliferation of endothelial cells of Capillary. (132)

Plate XXVII. From Case 11, age 25. Pthirus, tuberc. meningitis

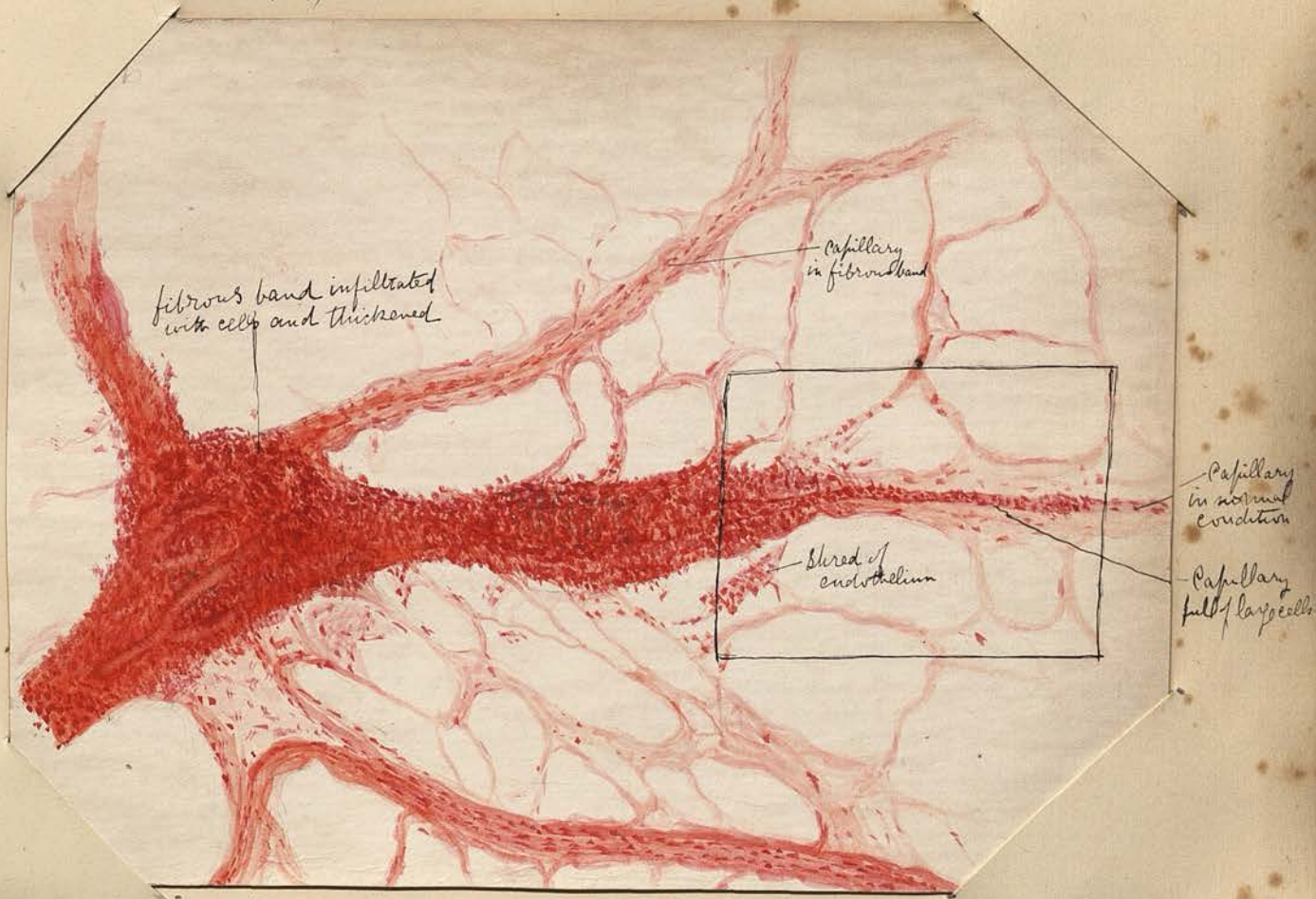
Fig 1. Rough low power drawing of a cellular ~~looking~~ development on a large fibrous band. The ~~part~~ <sup>square</sup> out-lined in ink is that drawn ~~by~~ under a high power in plate XXVIII. The unaffected part of the fibrous band can be contrasted with the affected part. There was no congestion in this case, and scarcely any change in the endothelium, most of which is shed.

Figs 2 and 3 are photos of the same part. The reason for the slight difference in course of some of the fibrous bands is that, in the interval between the making of the drawing & the taking of the photo, pressure was accidentally made upon the specimen.

The squares mapped out represent the parts photo'd in Fig 2 & 3 respectively of Plate XXVIII

(p 100 and 132)

Fig 1



Hartnack O.C.S. Oly 3. enlarged somewhat X70  
Picro Carmum staining

Fig 2

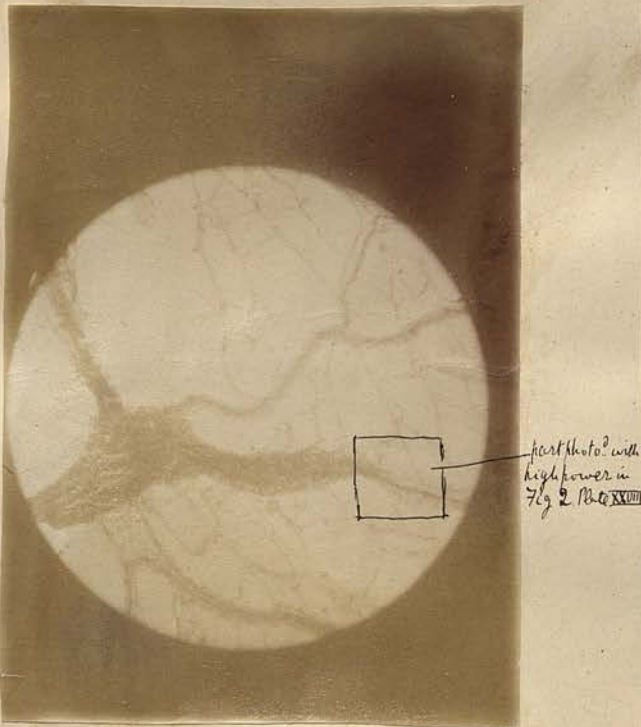
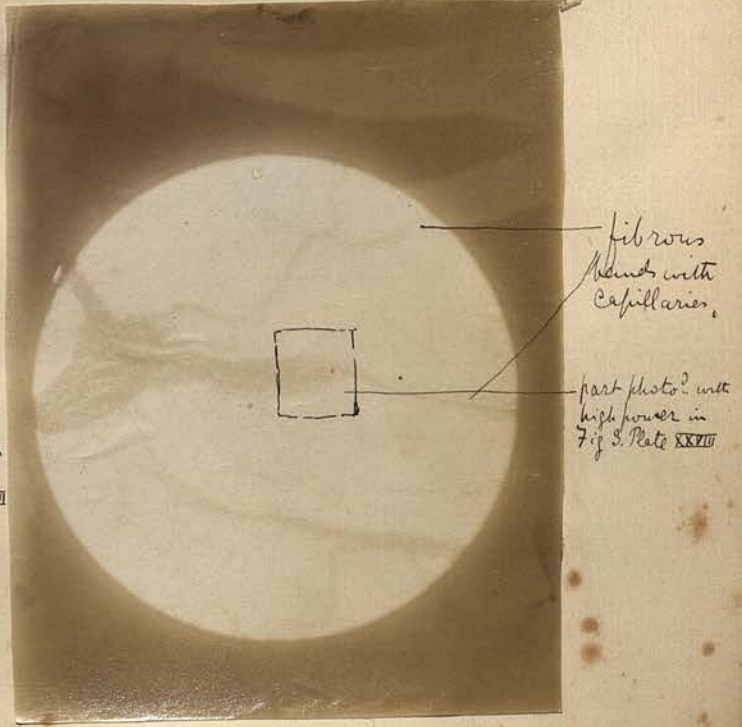


Fig 3.



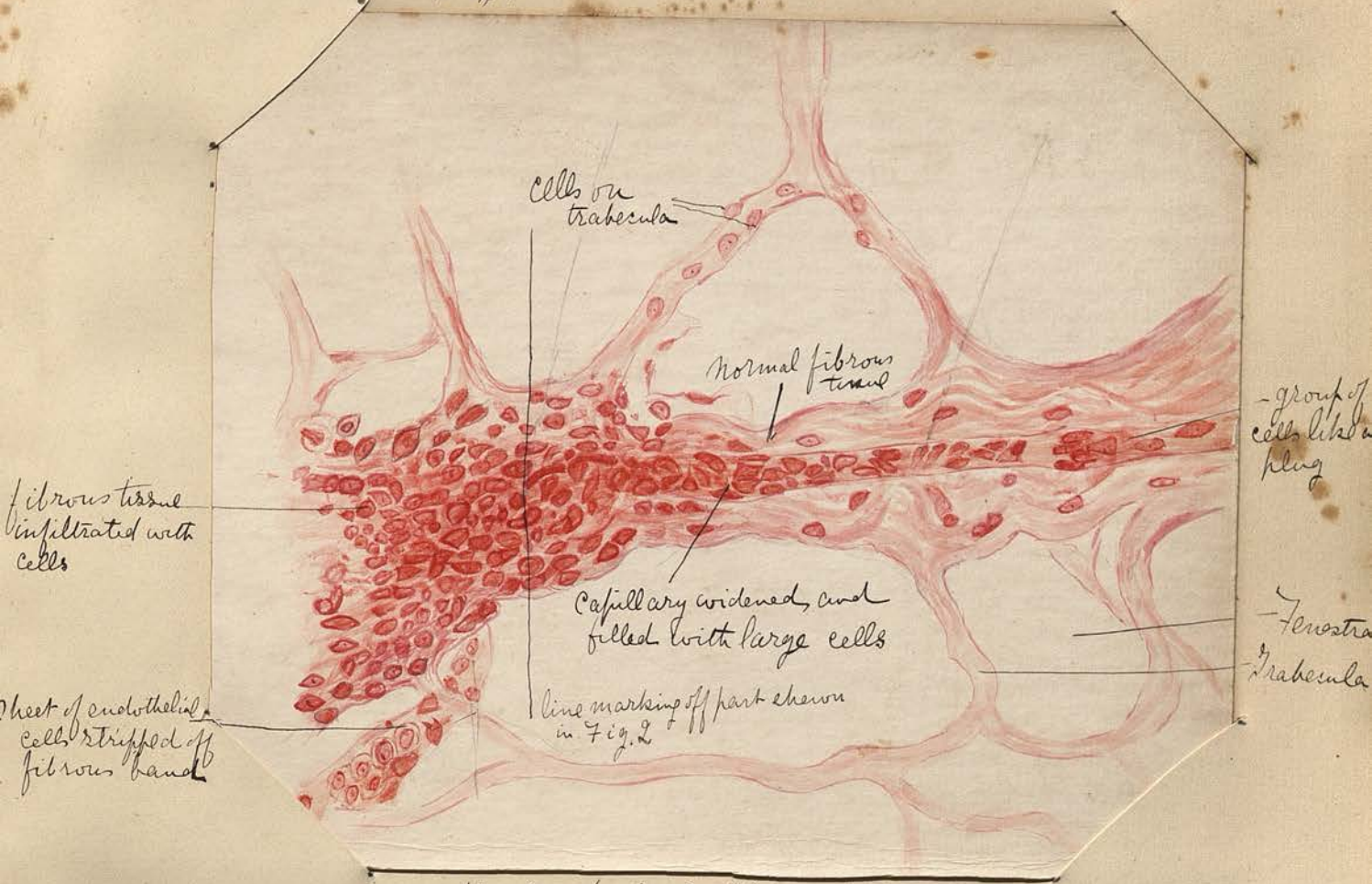
about X25

Plate XXVIII From same case as Plate XXVII (p 200)

Fig 1, represents the part outlined in ink in Fig 1 of previous plate, drawn under a high power, the relation of the capillary to the cellular part of the fibrous band can here be seen, and also the arrangement and shape of the cells in the capillary.

Figs 2 & 3 are two photos of the same, mounted as compared with the drawing - upside down, they respectively correspond to the little squares mapped out in Figs 2 & 3 of previous plate, but in relation to them, are also upside down. The difference in course of the fibrous band as seen in photos & drawing is due to the disturbance of the specimen as previously mentioned. (p 132)

Fig 1



Hartnack Oc. 3. Obj 7 tube out X280

Fig 2



about X150

Fig 3



about X150

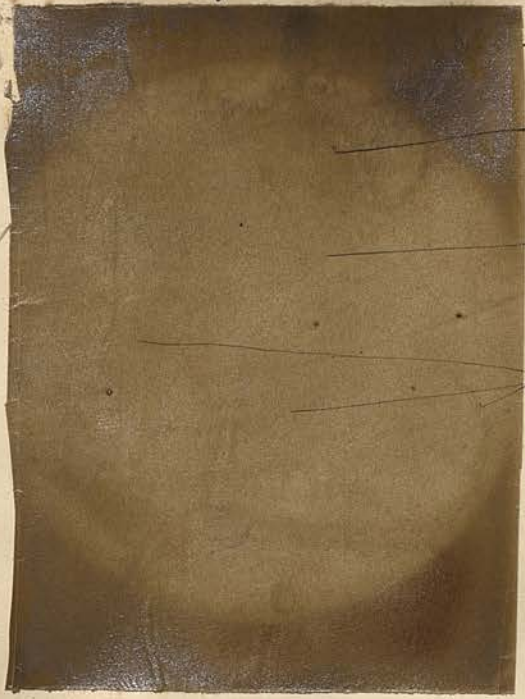
Plate XXIX.

Fig 1. From case 16. age, 3 years. Tuberculosis. numerous small (h/154) naked eye nodules in Omentum. (Drawings from same in Plate V and X)

Arteriole and venule with somewhat elliptical or oblong bodies at some distance from them on either side. Each of these "modules" is connected with the vessels by short capillaries, and correspond in position to fat clumps. Only their structure is dense, composed of ~~the~~ cells crowded together, some of which are small round cells, others larger or endothelioid cells. They are no doubt positions in which tubercle is forming, and are the early stage of the larger nodules seen by the naked eye. However almost exactly the same appearance may be seen, where there is no tubercle, & for that matter no inflammation.

Fig 2. From case 92. Tuberculosis in child, Small nodules seen by naked eye in Ome. closely crowded together. Some ~~had~~<sup>have</sup> the arrangement shown in Fig. 1, many however like that in upper part of photo. This is indistinguishable from a tache lanterne and, Fig 3, is put beside it to shew this resemblance. This is from a child aged 22 mos (case 78) who died of Diphtheria and in whom there was not the slightest trace of tubercle. The taches lanternes are seen to be composed of a capillary network enveloped by cells. The spiral arrangement of the limbs of capillary loops is well seen in Fig 2. (h/129)

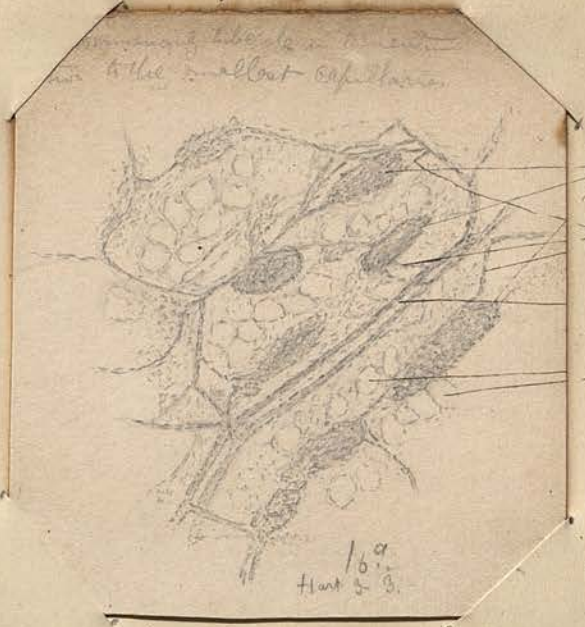
Fig 2



tubercle  
nodule?  
single  
capillary  
capillary  
loops

about 40 X

Fig 1



Small tubercles  
capillaries connect  
these with  
arterioles and venules  
fenestrated

169  
Hartnack 5-3

Hartnack Oc. 5 Obj. 5 X 50

Fig 3



single capillaries  
fat cells  
between arterioles  
and venules  
fat cells in  
tacholaitens

tacholaitens  
fenestrated

78 about X 40

Plate XXX

(p 154)

Fig 1. From case n<sup>o</sup> 16. Age 3. Tuberculosis (See Fig 1 Plate XXIX)  
Capillaries surrounded by cells, some of them large, a condition  
found throughout the whole O. & figured also in Plates V & X.  
Put here alongside —

Fig 2 in which there is the same appearance, this being from  
case n<sup>o</sup> 51, from which case there are also drawings in Plates XXIV  
and XXV. These large cells round the vessels will help to account  
for the ragged appearance <sup>of the capillaries</sup> in Fig 2 Plate XXV. The child was  
only 5½ years old, and the vessels were growing, and there was  
in addition commencing inflammation in the Peritoneum, so there  
is quite sufficient to account for the cells round the capillaries  
& also for groups of cells on the membrane. (165)

Figs 3 and 4, are from case no 56, (age 19 years. <sup>(p 196)</sup> This is  
of four years duration) and illustrate Delapfield's Chronic  
Cellular Peritonitis. The O. being covered with a thick coating  
of cells, the even though many have doubtless been detached  
post mortem, and the fibrous tissue infiltrated with  
them. High power photos are seen from the same  
case in Figs 1 & 2 of the next plate. (p 120)

Fig 2



Fenestrae  
group of cells  
on membrane  
Capillary loops  
obscured by cells

about 150

Fig 1



Fenestrae  
anastomosing  
capillaries and  
rounded by  
cells

16.  
Hart 7-3

Hartnack Oc 3. Obj 7 X240

Fig 3



fibrous band  
containing vessels  
membrane covered  
with cells  
Course of capillary  
obscured by cells  
Fenestrae

about X20

Fig 4



secondary trabeculae  
containing capillaries  
delicate primary  
trabeculae with en-  
dothelial covering in  
position  
the same without  
endothelial covering  
Fibrous band  
containing arteriole  
and venule

about X50

Plate XXXI

Figs 1 and 2. (From same case as Figs 3 and 4 of Plate XXX)  
Both from same position only at slightly different focus and, differently  
toned. To show the numerous cells in the fibrous tissue and also  
those lining the Fenestrae, in one place there is a group of eight  
nuclei, the nucleoli of which are well seen. The more cellular  
parts of this specimen were too dense to be photographed satis-  
factorily with the high power. (p 196 and 120)

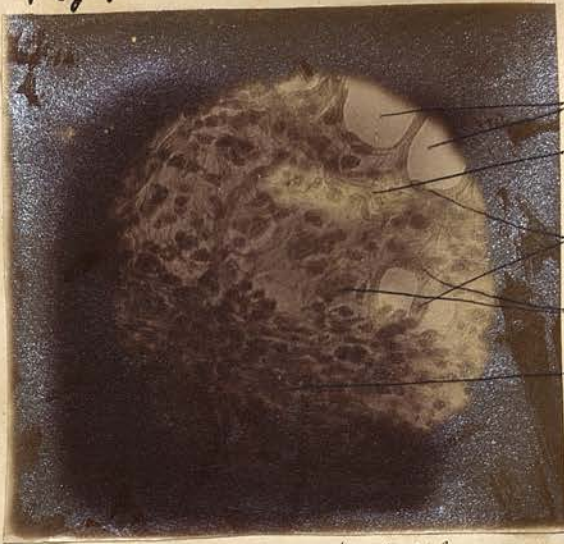
Fig 3. From case 12, age 36. Chronic Phthisis, (p 203)  
That represented in the drawing is one of two or three places in  
which groups of large cells project into the Fenestrae. The  
endothelium has as a rule been detached, and it is difficult  
to say what these cells are. Perhaps undivided wandering cells,  
perhaps due to proliferation of endothelium. There is a tendency  
to the formation of such groups of cells in cases of Chronic Phthisis

Fig 4. From case No 20, age 40 years, (Aortic Aneurism Backward pressure)  
Fibrous tissue dense, vessels, if present, obscured. (p 220)  
Endothelium in position, the nuclei close together & projecting

Fig 5. From Case 61, age 20-40. (Aneurism, Aortic Insufficiency  
9oz fluid in abdomen) Same appearance of endothelium on trabeculae  
as in Fig. 4. (p 220)

In the adult Omentum the endothelium is less easily removed than in  
the child's and, the cells are more closely set.

Fig 1



Fenestrae  
wavy fibrous band in meso-  
trachea  
endothelial  
cell  
groups of  
nuclei  
denser fibrous  
tissue near  
vessel containing  
many cells.

about X200

Fig 3



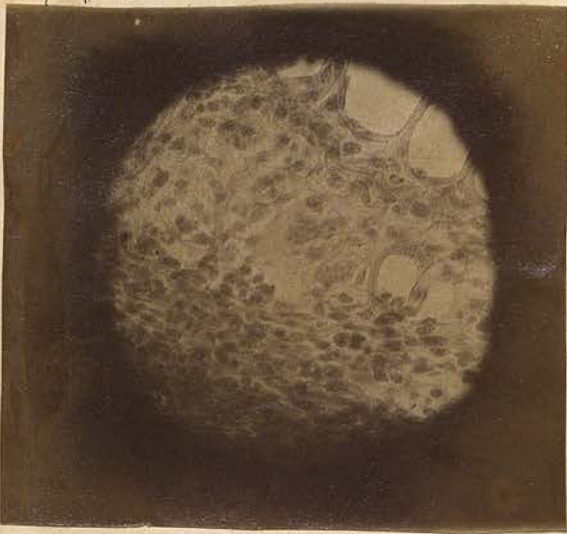
- Collection of  
large granule  
cells projecting  
into fenestrae

fibrin  
in vessel

12<sup>h</sup> Hart 5-7 tubes

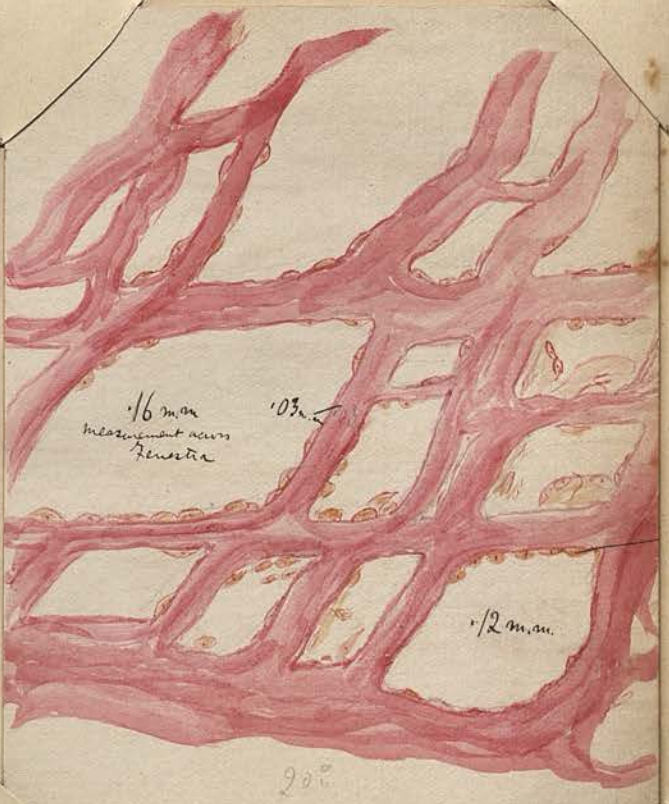
Chronic Phthisis  
Hartnack Oc. 5. Obj 7 tube out X 200  
Picro carmine

Fig 2



56

Fig 4



.16 mm  
measurement across  
fenestra

.03

.12 mm

rows of nuclei  
on trabecula

rows of  
nuclei on  
trabecula

200

cut 40. dead 48 hours. Washed. pres  
& endothel. on thickened trabecula  
3.7.

Hartnack Oc. 5 Obj 7 X 240  
Picro Carmine

Fig 5



61 about X240

Plate XXXII

Fig 1, From Case 41. <sup>(adult)</sup> Peritoneum adherent to other parts, (p 207)  
by old adhesions. Tubercle nodules in peritoneum, & congestion.

Peritoneum obscured, those fenestrae seen are crossed irregularly  
by delicate bands of considerable length, stretching over several  
fenestrae and apparently composed largely of cells - cellular  
adhesions. Fibrous bands, containing cells & sometimes  
vessels stretch over the surface in all directions spreading  
out at their attachment at either extremity - fibrous  
adhesions. The vessels are distended with blood.

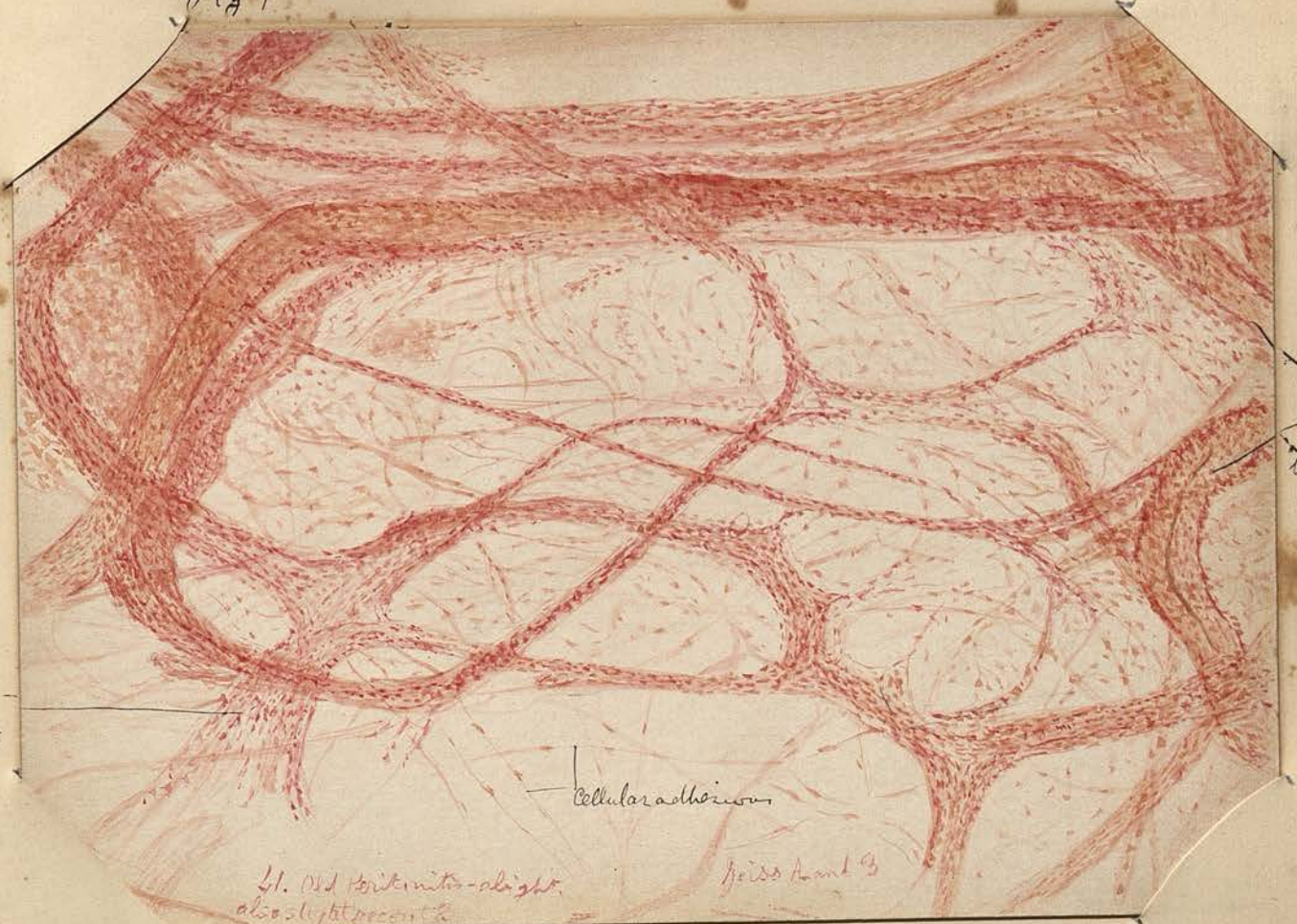
Fig 2 From Case 74, age 5 1/2. (p 160)

In drawing a small but dense, deeply stained, band of  
fibrous tissue about 1 1/2 m. m long stretches across the other  
structures and entirely unconnected with them in its course  
it spreads out to be attached to the membrane at either  
extremity, becoming flattened & thinned there.

There were numerous such bands in the specimen, most  
were partially vascularized in one a vessel a  
vessel passed along for some distance from either  
extremity, but the two did not meet -

p 123

Fig 1



fibrous  
adhesion  
leading out

Dilated  
blood vessel

cellular adhesions

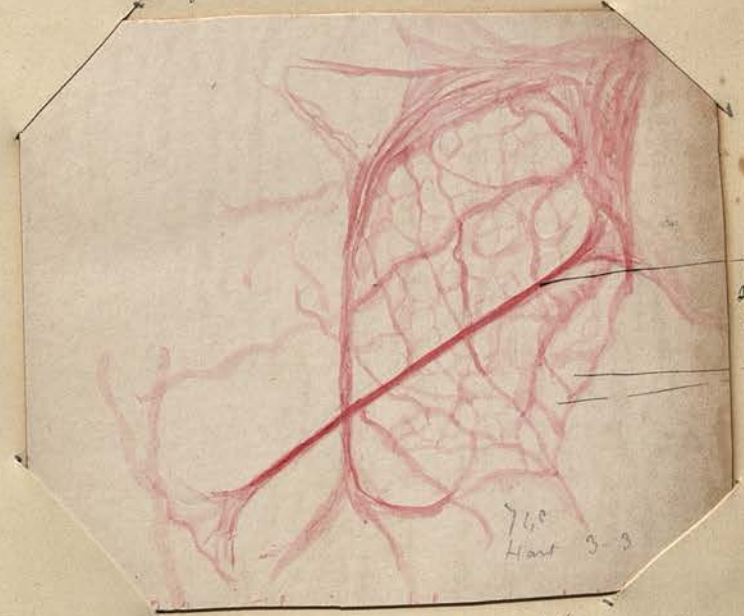
Sl. old tortuosity - slight  
also slight increase

Hess Band 3

Specs A and B. slightly enlarged about x80

Picro carmine

Fig 2



fibrous band  
stretching across  
fenestration

760  
Hart 3-3

Hartnack Oc 3. Obj 3. x 50

Picro Carmine

Plate XXXIII. From case N<sup>o</sup> 26, age 45, (Case of valvular heart disease with backward pressure) (h 226)

All the figures show nodular swelling on the trabeculae - the "bud-like structures" of Klein. They are most numerous in Figs 3 & 4. Photos of the same at different focus & reversed in mounting.

Plate XXXIV. High power drawing, and photos from same case

Figs 1 and 2 show ~~bud-like~~ structureless nodule enclosed in fibrous tissue with a delicate cord running through it, there is just a suspicion of a concentric arrangement in the body & the periphery is lighter than the centre. Fig 4, shows one as large, enclosing the fibrous tissue of a trabecula, but with no fibrous structure in itself, a cell near the vessel in the middle, a <sup>nucleus</sup> ~~cell~~, at the surface at one extremity. Figs 5 and 6, similar ones so much smaller, round more delicate trabeculae. ~~Fig 7~~

Fig 3, Elliptical nodular growth projecting into a small fenestra & in it distinctly the outlines of cells and nuclei. In this drawing also a typical stroma is figured and also what looks like nerve fibrils.

Stomata are also shown in Figs 3 and 7  
For description of these structures, see

Fig 2



about X40

Fig 1



26 microns  
showing small swellings  
on Trabeculae; and often

Zeiss 2 and A X50

Fig 3



Fig 4



about X40

Fig #4



Capillary

Fig 5-

about x200



Fig 6



Fig 1



about X200

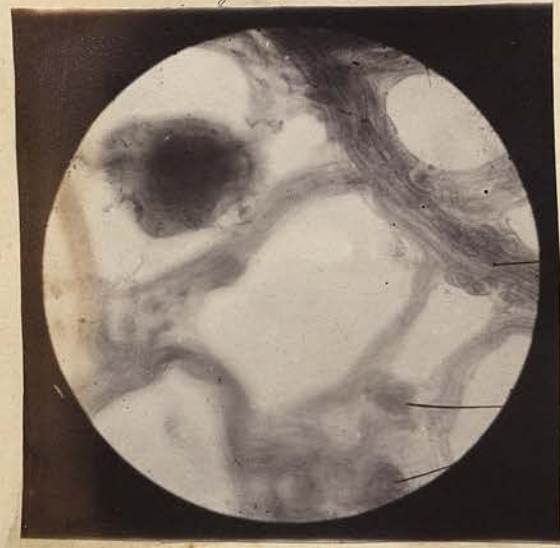
Fig 2



26d  
Gundlach 1/16 immersion  
Zeiss Oc. 2.

Osmic Acid  
Zeiss Oc. 2. Gundlach 1/16 immersion X 800

Fig 3

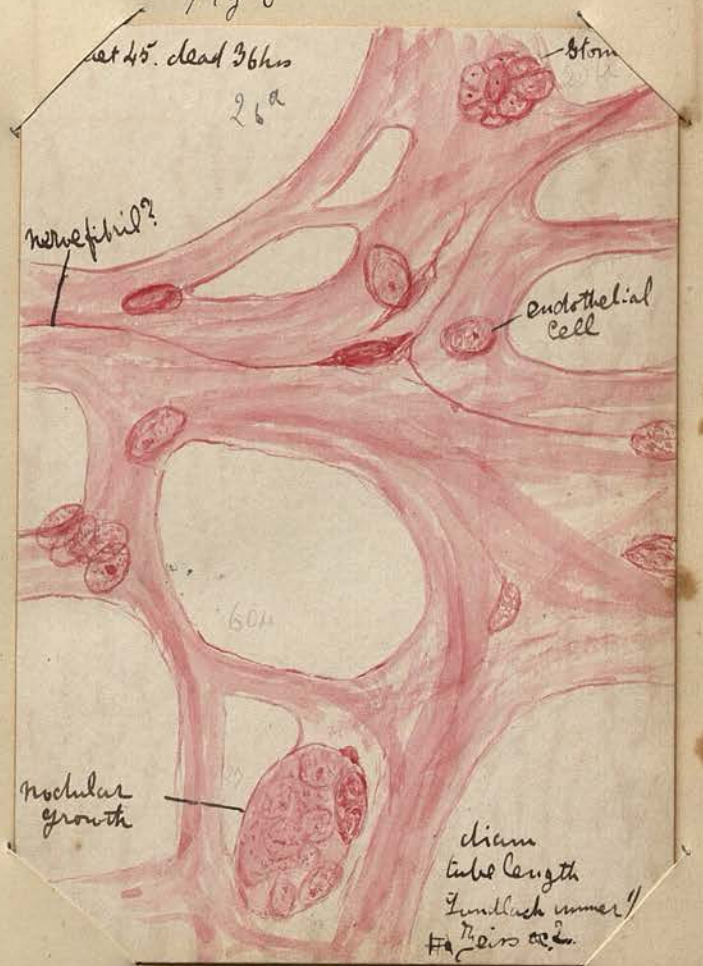


Capillary

Stomata

Fig 8

at 45. dead 36hrs  
26a



Stom

nephrid?

endothelial  
cell

60u

nodular  
growth

diam  
tube length  
Gundlach immer 1/  
Zeiss oc. 2.

Zeiss Oc. 2. Gundlach 1/16 inch immersion  
X 800

Fig 7



"bud-like"  
structure

Stomata

about X200

Plate XXXV From case No. 38. age 51. Malignant tumour  
of Pancreas with secondary nodules in Livers  
Capillaries in Fig 3. and arterioll and venule in Fig 1 and 2.  
thickened at points and staining deeply as with collection of  
cells in their lumen

Plate XXXVI High power photos from same case

Figs 1 & 2, as parts mapped out in Fig 1 Plate XXXV & referred  
to there. The smaller ~~one~~<sup>vessel</sup> is seen to be the arterioll. The  
collection of cells is most distinctly marked in the venule  
The cells are irregular in shape and seem in Fig 2 to have  
broken through its wall. In Fig 1 the collection of cells  
stops abruptly with a rounded extremity the vessel  
curving round sharply at that point, as if cells produced  
behind had collected & stuck in this position. Fig 3 is  
from the same part as Fig 2, but from a different  
negative taken with shorter exposure. The outlines of the  
cells in it are better seen. though the fibres of fibrous  
tissue are not so clear

Fig 4, shows a fibrous band, with a capillary in it  
indistinctly seen, but filled with cells in the upper half

For description of case see p 134 - 137

Fig 1

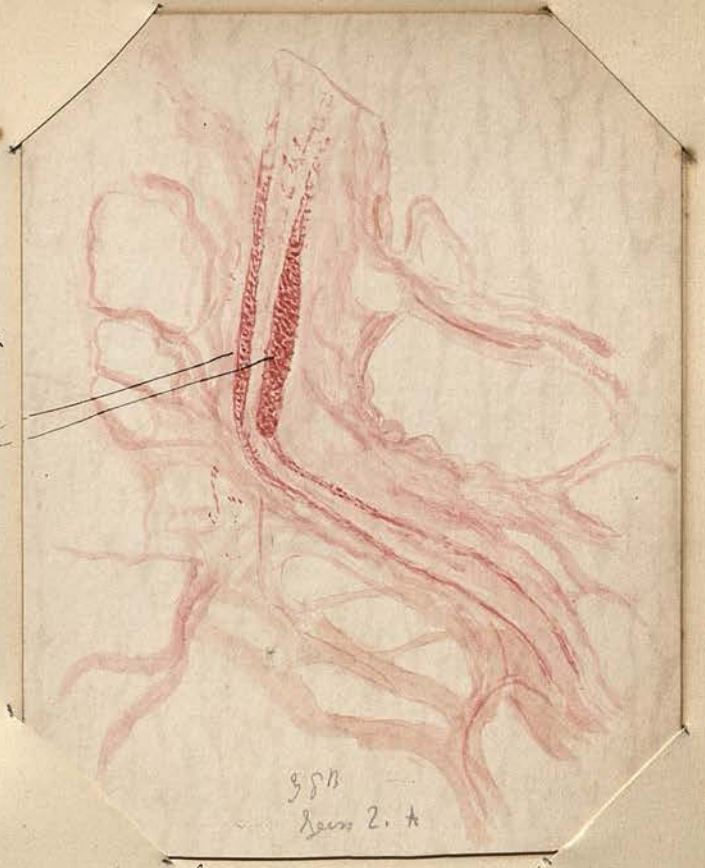


Fig 2



Fig 2  
Fig 1  
of plate  
XXXV

about X 20

Fig 3



about X 30

arterial  
endosome

secondary  
trabecula with  
capillary

Cellular  
collector in  
vessels

Less Ve 2. Ob. A. about X60

Fig 1



about x200

Fig 2



Fig 3



Fig 4



Capillary  
collective cells  
at point higher up

Plate XXXVII From case 90, age 40, Leucythemia

Vessels distended to the utmost ~~are~~ principally with white blood corpuscles, demonstrating the great <sup>variety</sup> differences in calibre of capillaries and even at different parts of the same capillary. One capillary holds at most only one row of leucocytes, another measures 80 or 100  $\mu$  across. There are a good many cells in the tissues outside the vessels, but nothing proportionate to the enormous distension of the vessels. The part outlined mapped out in ink in Fig 2 is that drawn under a slightly higher power in Fig 3. Capillaries are brought out by this distension, whose presence would not otherwise have been noticed

Plate XXXVIII From same case

Picrocarmin specimens were too opaque for photographing with a high power, Figs 1 and 2 are from a logwood stained specimen & the colours are not suitable for photography

Still the outlines of the vessels can be clearly seen and so can their cellular contents, which coming out in the photo as small round dark points, ~~are~~ are deeply stained in the specimen, indicating that the cells are leucocytes at least not red blood corpuscles

For description of case see p 140

Fig



X20

Fig 2



X20

Cellular exudation round capill.

reproduced below in Fig 3.

venule

arteriole

Figs



Capillary distended to 100%

Capillary distended but contains only one row of leucocytes

Geess Oc 3. Obj A. slightly enlarged  
Picro Carmine staining

X80

Fig 1



Fig 2



Arteries  
Capillaries  
filled with  
blood cells.

about X150  
Logwood staining.

Plate XI From case 84. (Melanosis) P.

Fig. 1. Photo at about twenty diameters from a specimen stained in Carmine. Two large fibrous bands are seen diverging. The course of a single vessel can be made out in each on close inspection. Projecting from either side at several points are dark granular patches corresponding in position to fat clumps.

Fig. 2 Drawing from another part of same specimen as Fig. 1. The vessels are more clearly indicated in the drawing than in the specimen. Two vessels in a fibrous band at the right hand side are seen to divide & form a loop above, while two other branches pass on into trabeculae below. Around these vessels are collections of large cells, as large as the meso-formative or fat formative cells in the growing omentum. They are round and pigmented and even with this power ( $\times 90$ ) it is easily seen that the pigment is at the periphery of the cell. Though usual densest close to the vessel; these pigmented cells are often placed at some distance from it & some seem to project into fenestrae as if they corresponded in position to Endothelium or wandering cells.

In thicker parts of the Osm. these pigmented cells form dense spaque nodules, like melanotic sarcomata.

Fig 1

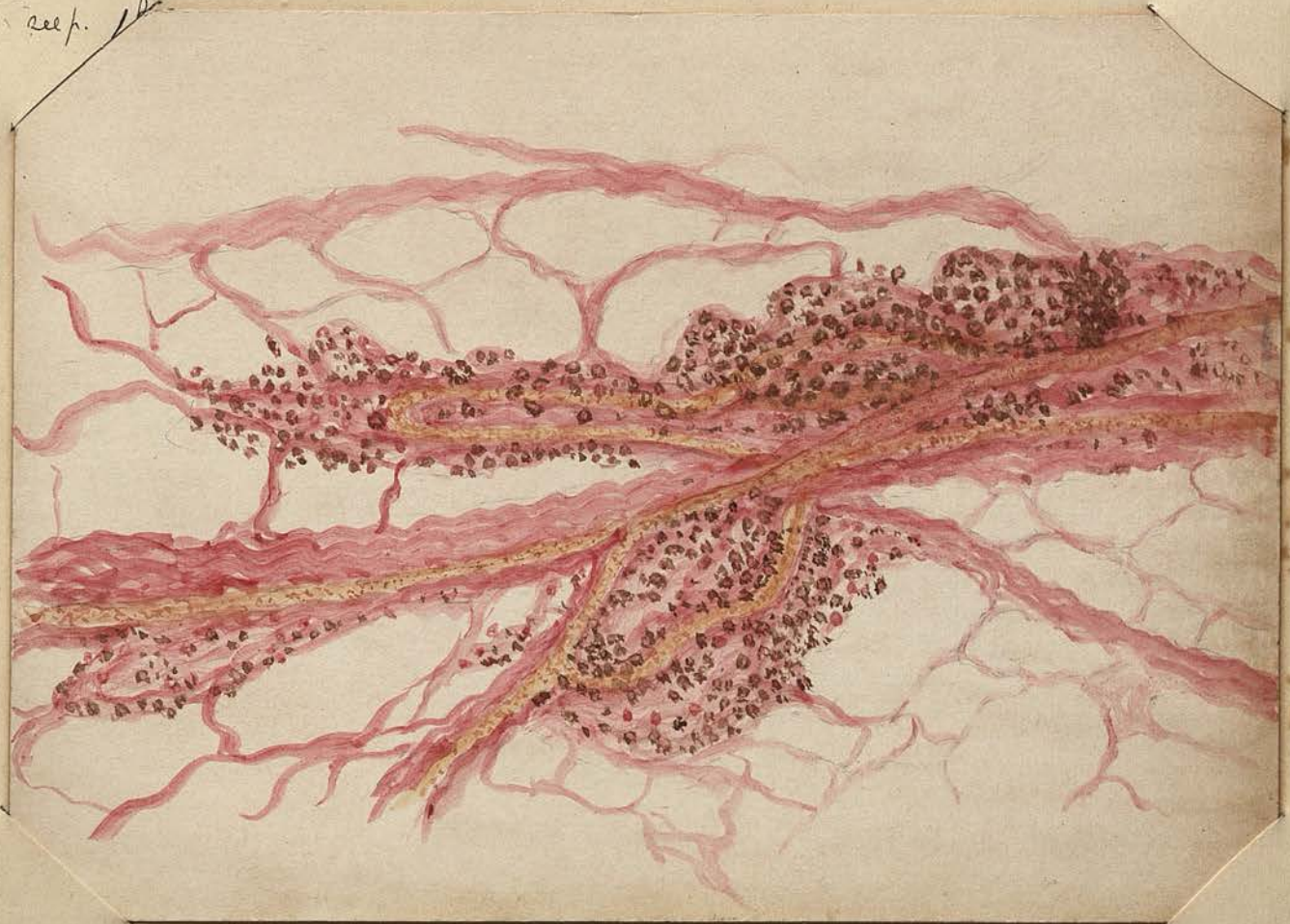


Capillary

perichthel  
pigment in  
cells round vessel

about X 20  
From case of melanosis. No. 84  
sep.

Fig 2



Zeiss Oc. 3. Obj. A. slightly enlarged & about X 90