Fig. 1. Drawing of a longitudinal section of arterioles of the Spleen, showing Hyaline Degeneration. Case of Pyæmia = Logwood stain. X 300

a. a'. Hyaline clumps involving the intima, and partly invading partly pushing outwards the muscular coat b. b'.

c. External coat somewhat encroached upon by a. otherwise swollen and the individual fibres hyaline.

d. d'. Endothelium encroached upon by a. a'. compressed and atrophied. At d'. the lumen of the arteriole appears almost completely obliterated.

e. e Small hyaline clumps consisting of swollen intima + pushing outwards the muscular coat.

The larger hyaline clumps are seen to involve chiefly one side of the vessel wall.

N.B. The slide from which this drawing was made I have presented to Professor Greenfield.

Fig. I

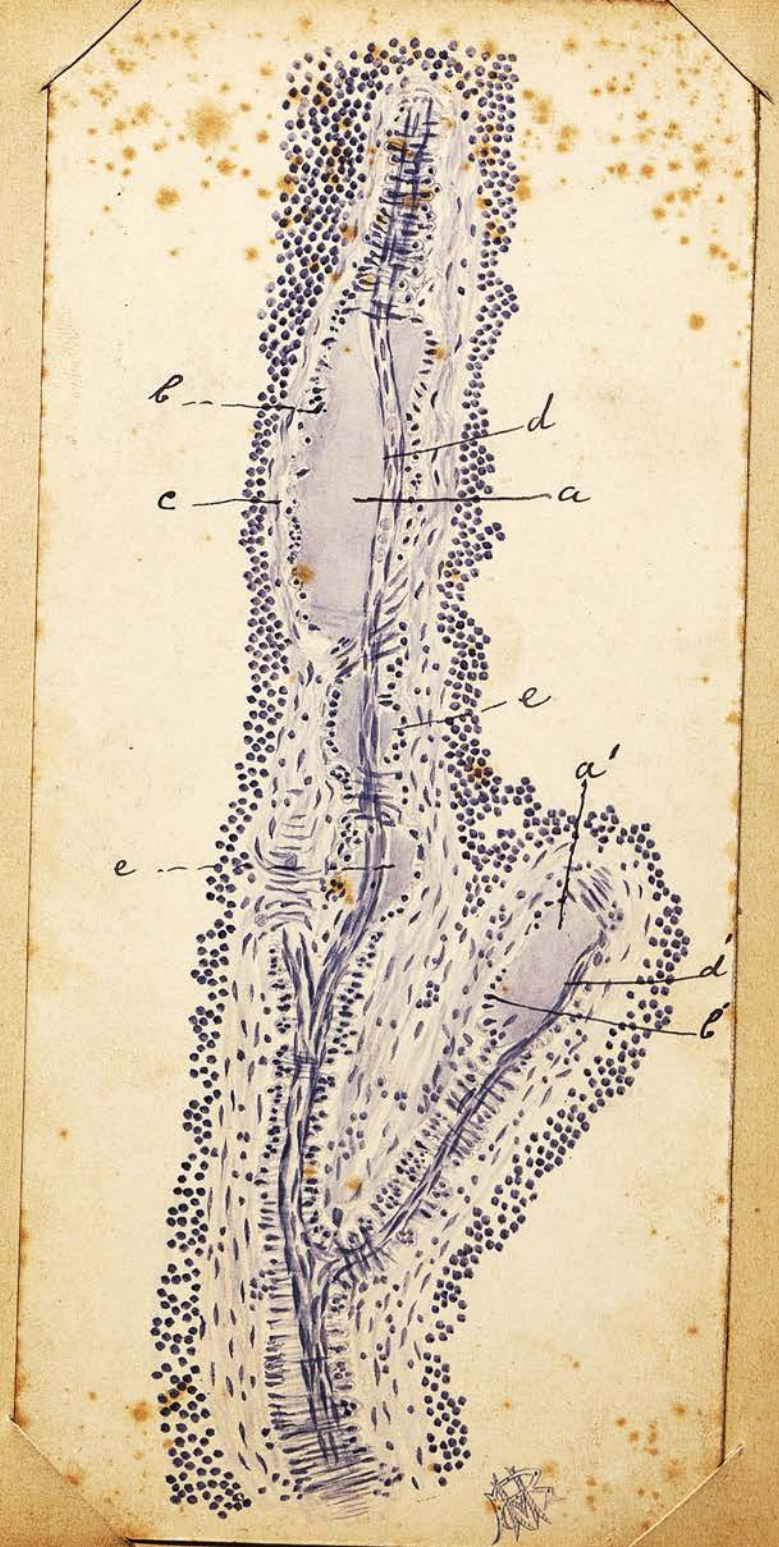


Fig. 2. Drawing of arterioles of Spleen, showing Hyaline Degeneration near point of division - Case of Diphtheria. Methyl-anilin-violet stain. X 300.

a. Hyaline mass, extending all round the vessel wall at its upper and lower extremities, involving the intima and the muscular coat which is pushed outwards and at points atrophied and almost destroyed.

b. b'. b'. Muscular coat pushed outwards and at b'. b' almost destroyed.

c. Endothelium compressed and atrophied.

d. Lumen of arteriole containing coloured blood corpuscles.

e. An apparent vacuole probably caused by the needle in the process of mounting.

f. Healthy arteriole.

N. B. This drawing is taken from slide 1. It gives a very good representation of the various parts, but the exact colouring of the original is not very well brought out. It will be observed from the section that the hyaline mass is stained decidedly a rosy red which, however, is not so intense as that seen in waxy degeneration.

Fig. 2.

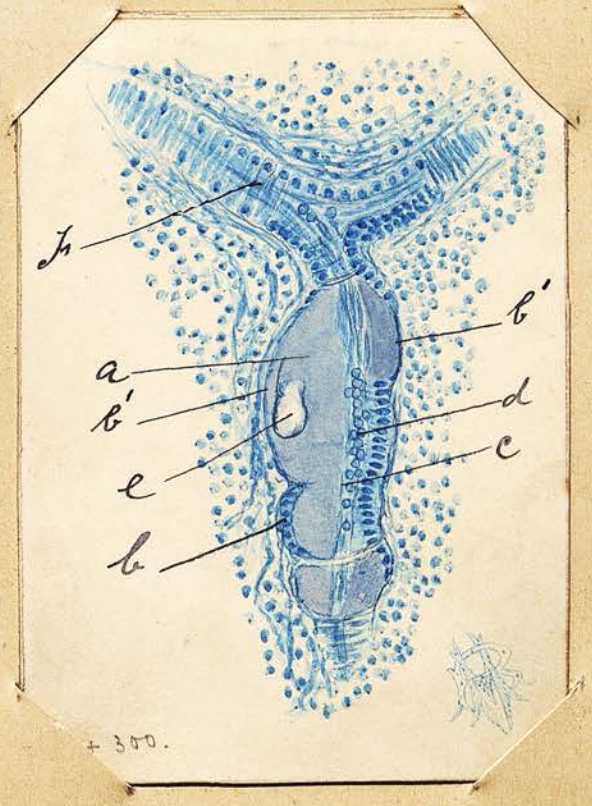


Fig. 3. Longitudinal section of a Malpighian Corpuscle of the Spleen, showing transverse and longitudinal sections of arterioles with hyaline degeneration affecting chiefly the muscular coat. - Case of Diphtheria - same as that from which the previous section was obtained - Logwood stain -

X 325

a. Malpighian follicle showing a thickening of the connective tissue fibrils and a felted condition of the follicular structures.

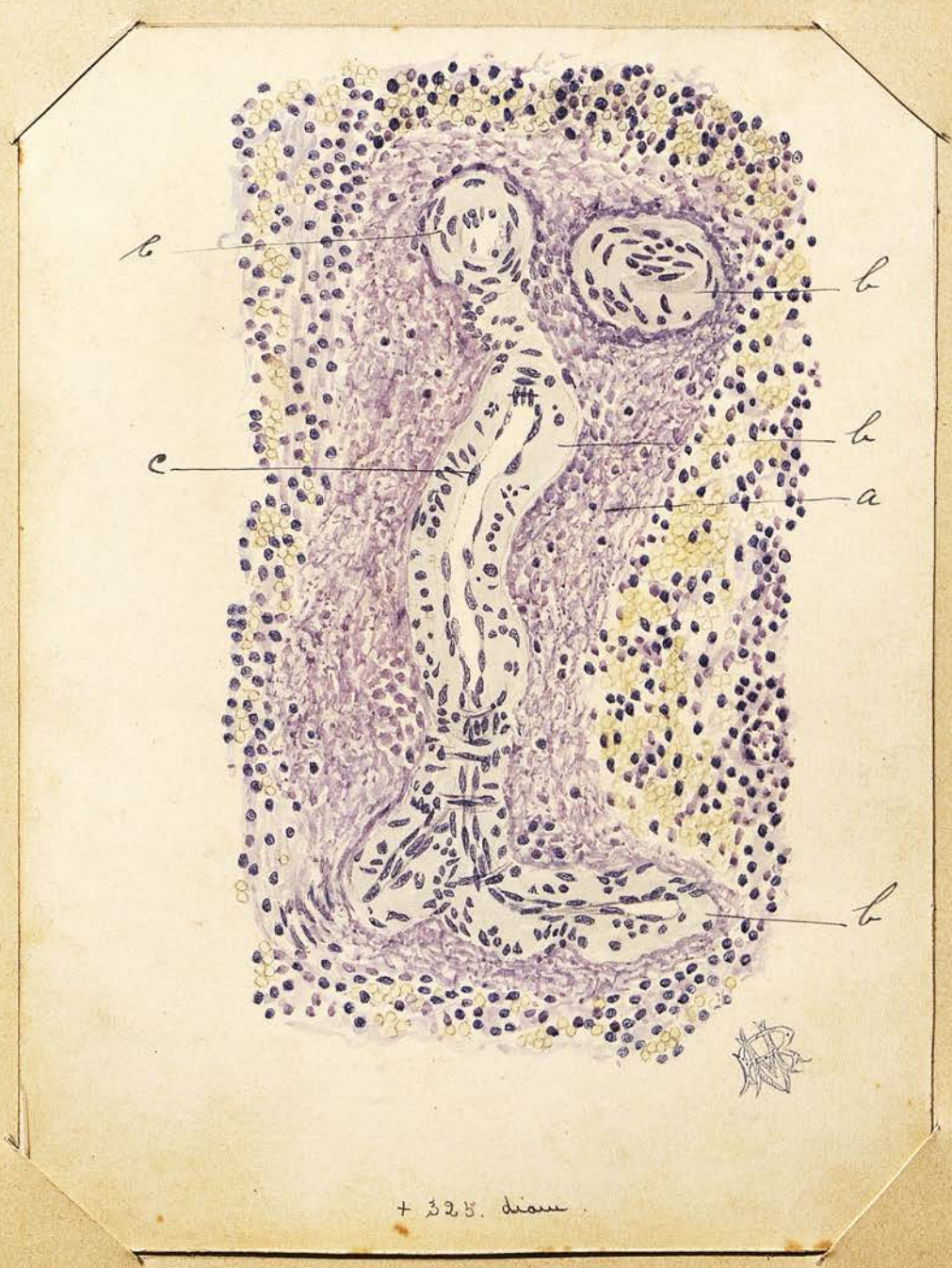
b. Sections - longitudinal and transverse - of arterioles with thickened, hyaline, muscular coat.

c. Endothelium in some places markedly swollen; and the lumen of the arteriole appears dilated at certain part.

Surrounding the Malpighian follicle is a zone of acute congestion.

N.B. This drawing was taken from slide 2. which also shows a very good transverse section of an arteriole whose intima and muscular coat are the seat of advanced hyaline degeneration.

Fig. 3.



+ 325. diam.

Fig. 4. Semidiagrammatic drawing illustrating changes in a transverse section of a Malpighian follicle of the spleen in acute infective diseases. - × 300

a. Arteriole of the follicle in transverse section showing extensive hyaline degeneration of the intima involving the left half of the vessel-wall more than the right.

b. Pale hyaline-looking central portion of the follicle with a few lymph cells some of which are undergoing atrophy.

c. Dense deeply stained portion consisting of lymph cells in great abundance closely aggregated together, forming, with the swollen connective tissue fibrils a felted mass which shades gradually off into the surrounding follicular tissue

Slides 2 and 3 show different degrees of this follicular change.

Fig. 4.

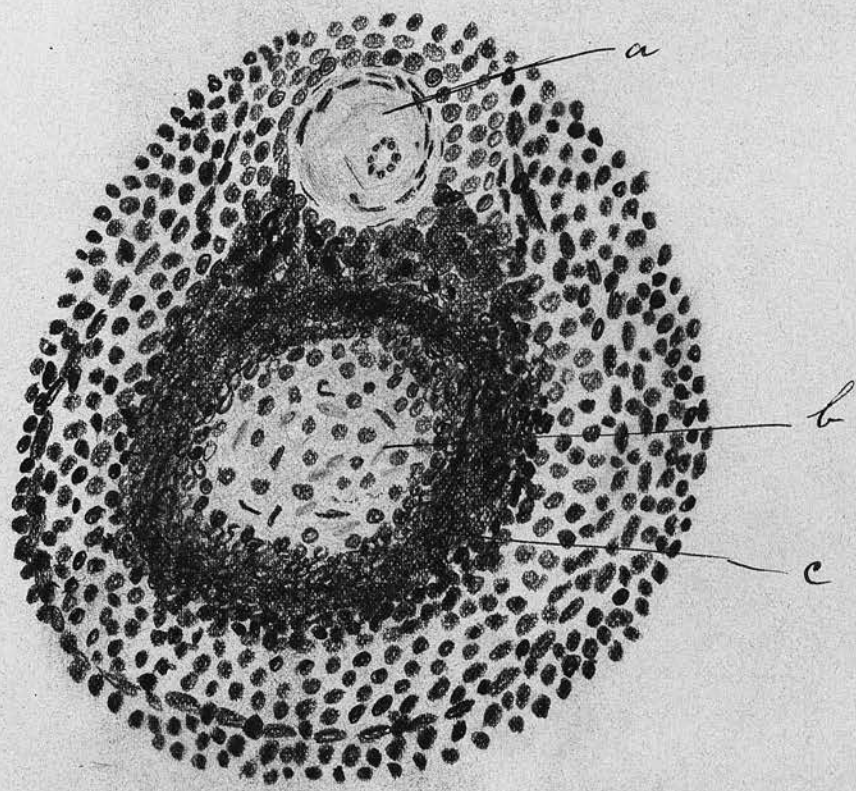


Fig. 5. Drawing of a section of a Malpighian body of the kidney from a case of pyaemia - Logwood stain. ×300.

a.a. Capillaries filled with deeply-stained plugs of micrococci so closely aggregated as to appear homogeneous and hyaline when viewed by a power of 300 diameters. At certain parts the micrococci have distended the capillary wall to such an extent as to have caused an apparent rupture of it, and have diffused themselves into the tissue immediately surrounding.
The nuclei in the glomerulus appear more numerous than normal.

b. Part of an adjoining glomerulus with some increase in the number of nuclei.

p.13. This drawing is from slide 4. which also exhibits this appearance in the afferent arteriole of another glomerulus.

Fig. 5.

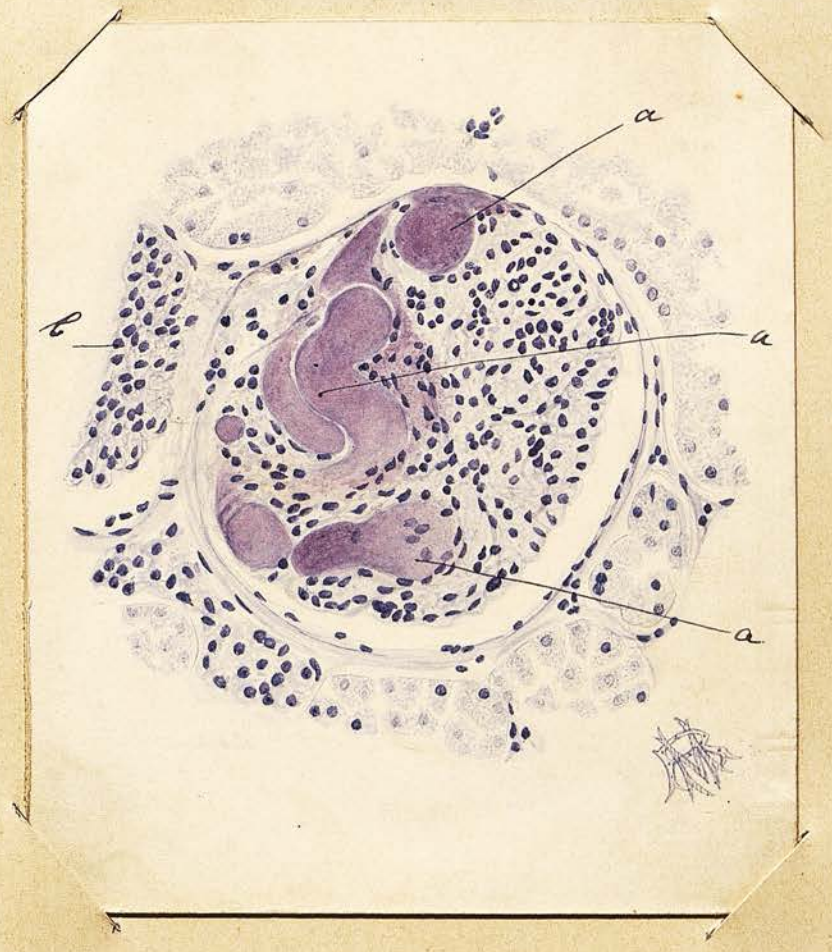


Fig. 6. Drawing of a section of part of the cortex of a kidney from a case of so called "Surgical kidney" showing thickening of the capsule, an area of degenerating tissue rapidly passing into abscess formation, with a small abscess cavity at one part. - Logwood stain - X 75.

a. Thickened capsule of kidney

b. Area of degenerating tissue with

c. Abscess cavity.

d. Malpighian body with a plug of micrococci in its interior; and an area of homogeneous, hyaline looking tissue surrounding the plug which, when the specimen was freshly stained and mounted formed a marked contrast between the deep stain of the plug of micrococci and the external part of the glomerulus.

In the degenerated area near (b) several Malpighian bodies are seen which have become changed into a hyaline mass previously to breaking down and becoming caseous.

N.B. This drawing is from slide 11; but, unfortunately, the specimen got crushed before the drawing was completed.

Fig. 6.

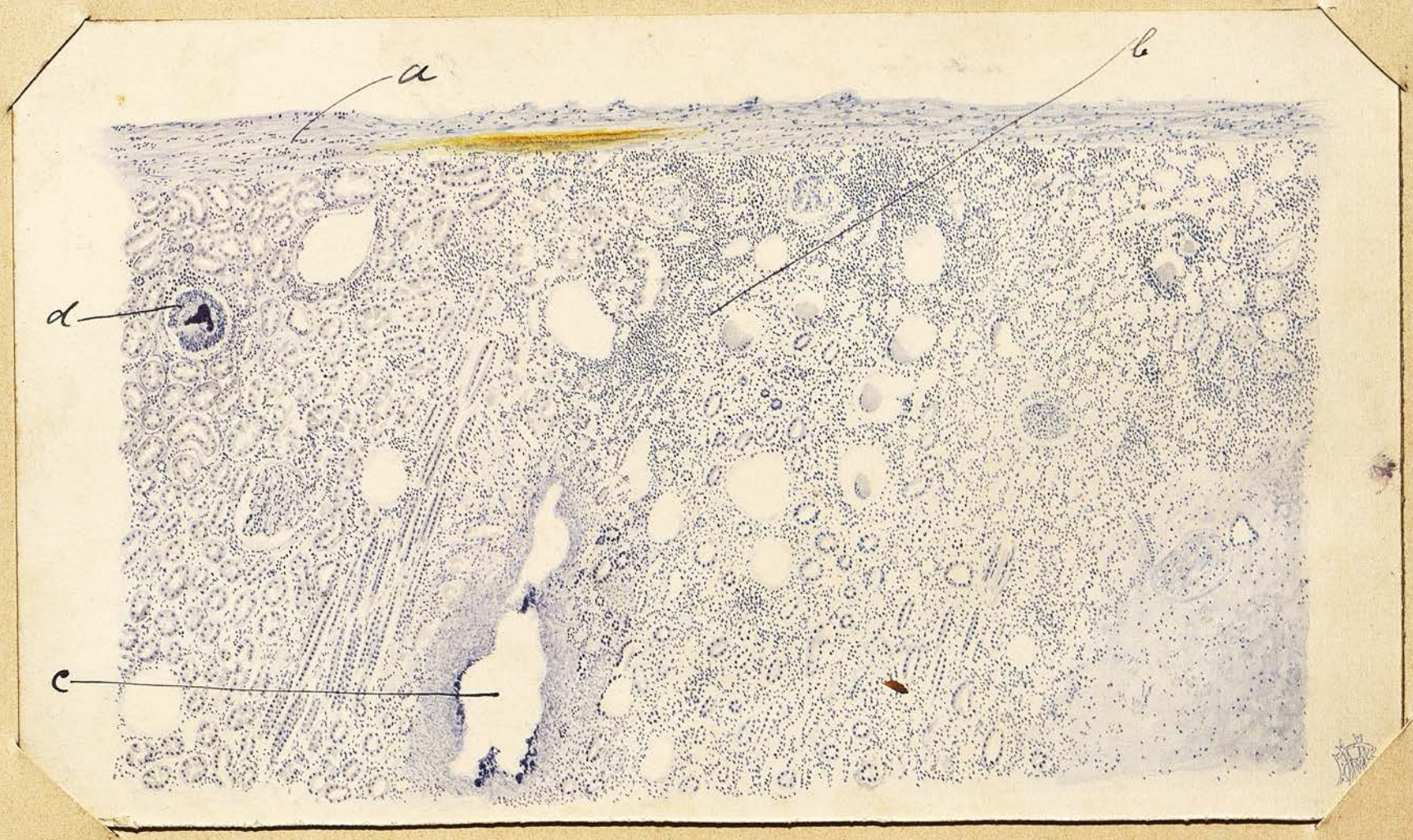


Fig. 7. Drawing of part of cortex of kidney showing a Malpighian body (a) undergoing hyaline degeneration. Case of Pyaemia - Logwood. ×75.

N.B. Drawing taken from slide 5.

Fig. 8. a. b. Sections of Malpighian bodies undergoing hyaline degeneration from case of Pyaemia. Logwood stain. ×300.

N.B. Fig. 8. a. is from slide 7. Fig. 8. b. is from slide 8; but the latter is not quite successful in the colouring.

Fig. 7.

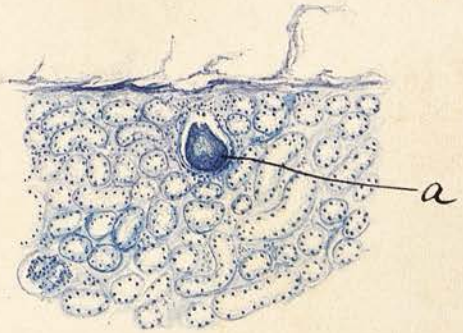


Fig. 8. b

Fig. 8. a

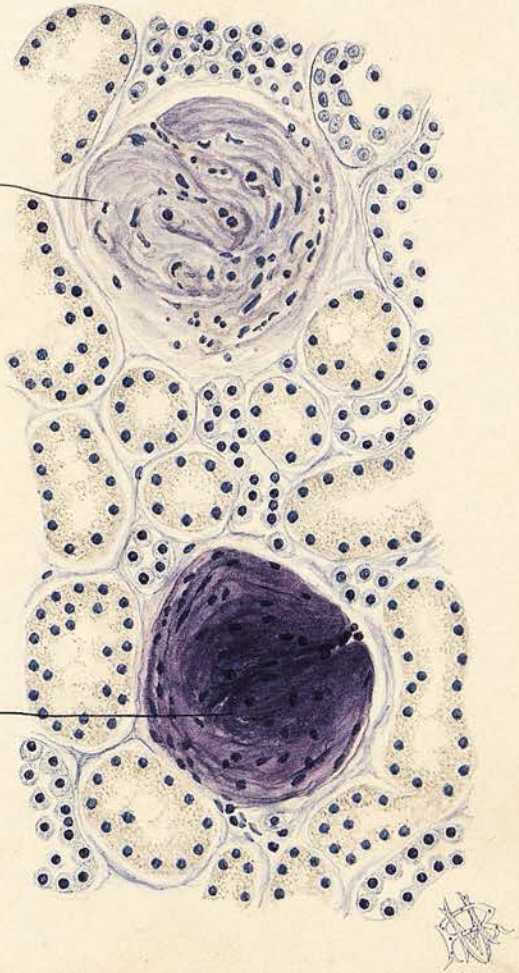


Fig. 9. Drawing of part of a section of a "surgical kidney" showing a condition of partial necrosis. Logwood stain. X 75 (about).

a. b. Malpighian bodies in the partially necrosed part in a condition of hyaline degeneration.

c. Vessel with small cell infiltration.

N. B. From slide 9.

Fig. 9.

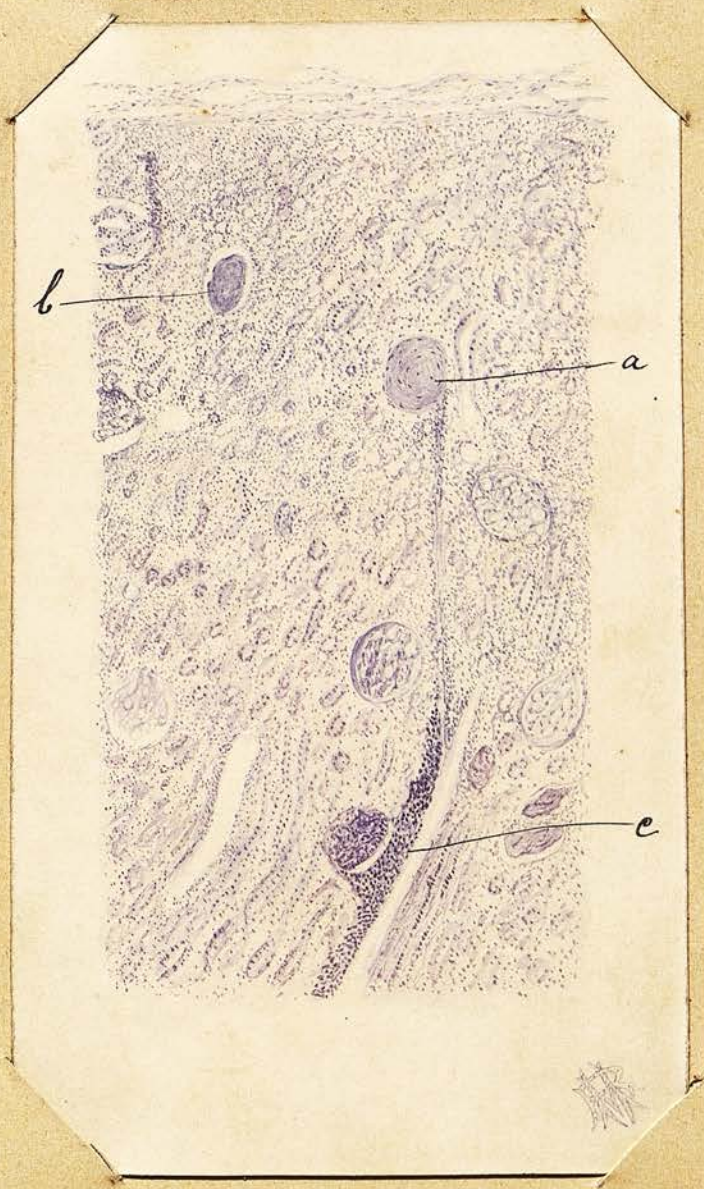


Fig. 10. Drawing of section of Malpighian body of kidney containing a deeply stained, homogeneous, hyaline mass. Logwood stain. X 300

a. Glomerulus converted into a hyaline mass

b. Epithelium of the tubules in a condition of cloudy swelling and fatty degeneration.

p. 13. Slide 6 shows this condition.

Fig. 10.

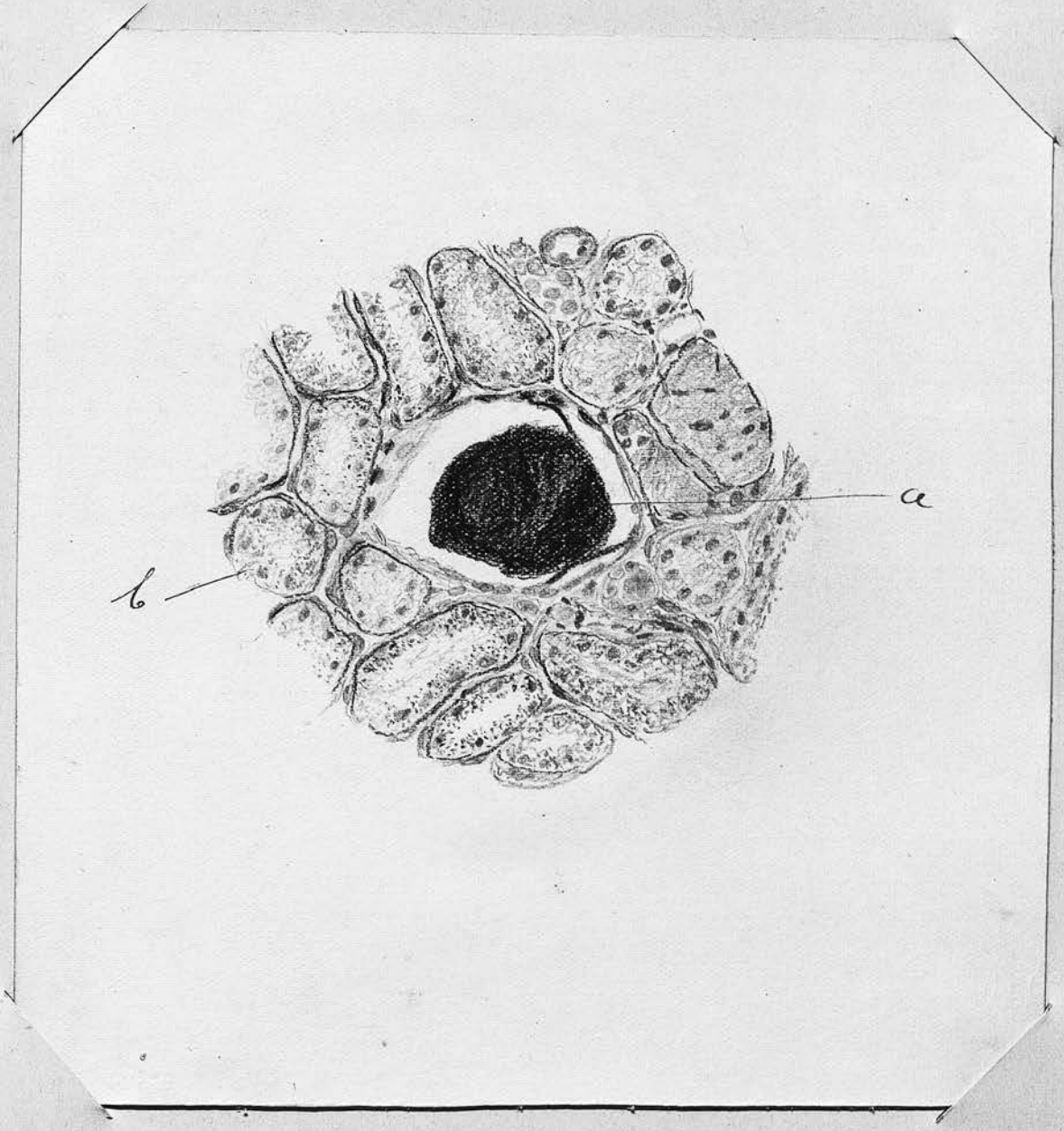


Fig. 11. Rough drawings of sections of two Malpighian bodies of kidney — Logwood stain — × 300.

(a) Shows thickening with hyaline degeneration of the capsule of Bowman and the part immediately external - more marked to the right of the section. From a case of pyaemia - Bacilli, faintly stained, may be seen in the section from which the drawing was taken — slide 10 - but these bacilli and their relation to this form of degeneration may be better seen on a careful examination of slide 13.

(b) Shows a hyaline change at one portion of the periphery of a Malpighian body in close proximity to Bowman's capsule. From a case of Acute Yellow Atrophy of Liver. Taken from slide 15. A further advanced condition of this form is seen in slide 16 from the same case. There is intense cloudy swelling fatty degeneration of the epithelium of the convoluted tubules, which in the logwood specimens appears as if the epithelium were hyaline.

Fig. 11.

Figs. 12, 13, 14. Sections of Malpighian bodies of kidney, showing various stages of hyaline change, along with the presence of numerous minute bacilli, from a case of pyæmia. Gentian violet + Eosin – Gram's method.

X 750 (about).

12. shows the hyaline change in an earlier condition than either 13, or 14. It will be noted that the bacilli are more numerous and appear to have a more direct relationship to the capillary walls in this figure than in the others. Luminal atrophied nuclei are seen in the hyaline mass, whilst bacilli are seen in close contact with others, as if in the act of attacking them.

13. 14 show more advanced stages of the hyaline change, in which many of the bacilli have disappeared from the hyaline parts.

N. B. These three figures are taken from slide 12 which also shows a Malpighian body in the condition of hyaline change analogous to that in the previous figure and which exhibits the relation between bacteria and the change in question in a very marked manner.

Fig. 12.

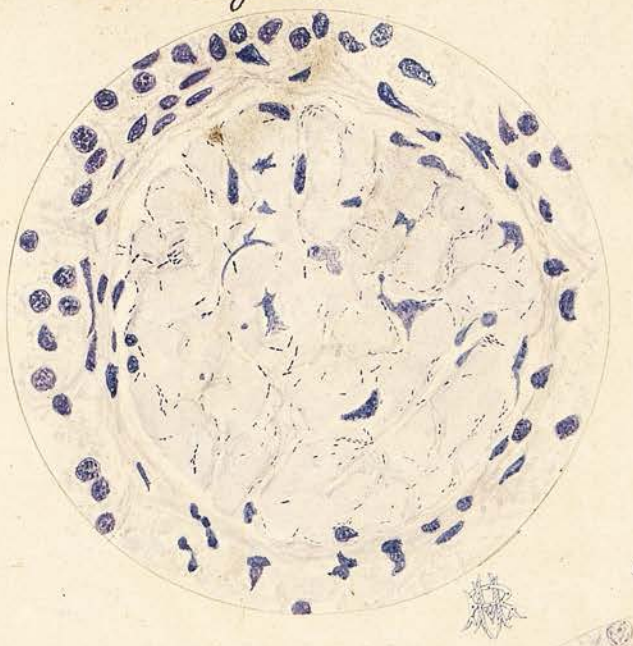


Fig. 13.

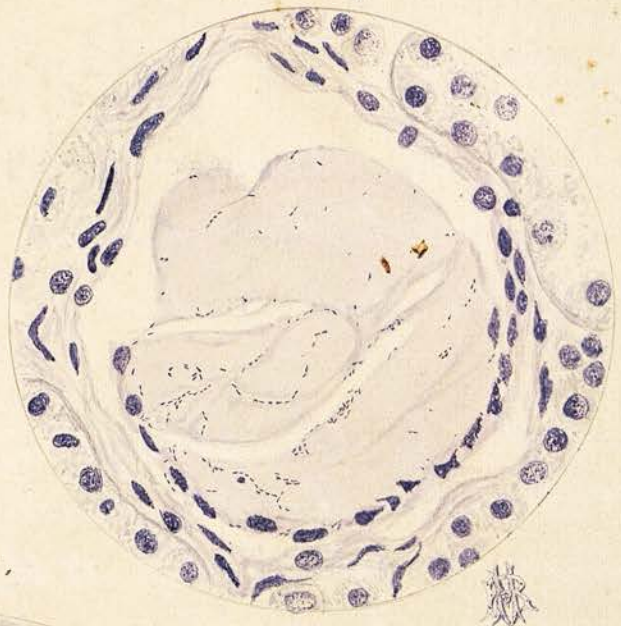


Fig. 14.

Fig. 15. Section of a Malpighian body of kidney - case of pyæmia, same as previous figures - Gentian violet and eosin - Gram's method. ×750 (about)

Showing partial hyaline degeneration of the Malpighian body, and the relation of bacilli to the degenerated portions. Towards the circumference of the glomerulus these bacilli are seen in considerable numbers, and it would appear that they are active agents in causing the degeneration in this case.

p. 13. Slide 13 shows this.

Fig. 15.

Fig. 16. Section of a Malpighian body of kidney from a case of "Surgical Kidney." same as Figs. 6 & 9. showing a plug of deeply stained material which under this power is seen to consist of micrococci closely aggregated together. Logwood stain

X 750
(about)

Fig. 17. Shows section of a vessel of the kidney - from the same preparation - filled with enormous numbers of the same micrococci.

X 750

R. B. Slides 9 & 14 exhibit these changes.

Fig. 16.

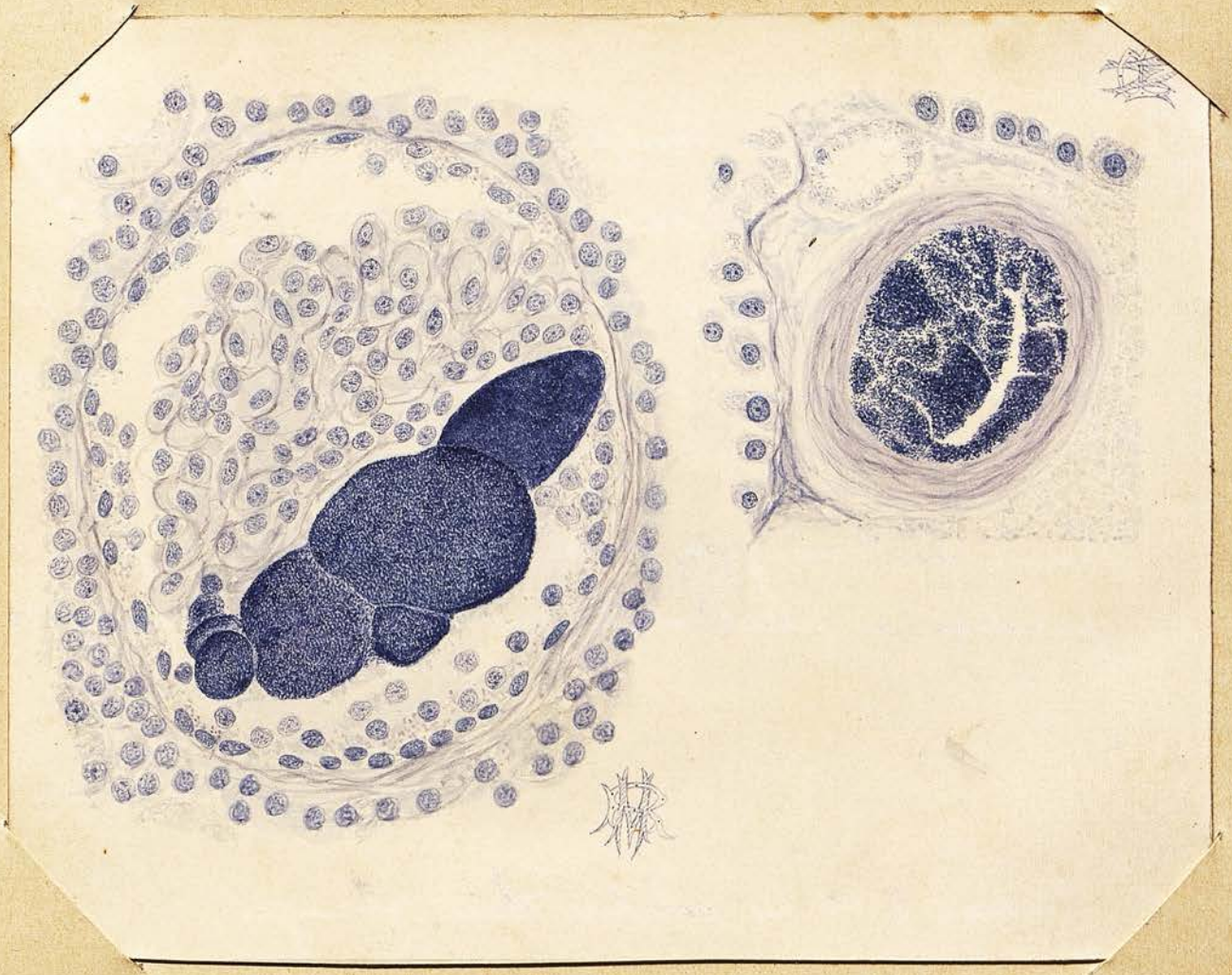


Fig. 17.

Figs. 18. 19. 20. are copied from Stillings paper, and exhibit the changes described by him as occurring in the arterioles and Malpighian follicles of the Spleen.

Fig. 19 - evidently corresponds to the change I have described affecting the muscular coat of the small arteries of the spleen, and which is represented in Fig. 3. supra.

Figs. 18. & 20 represent changes in the Malpighian follicles of the spleen, which, however, I have never seen; but which may correspond to a later stage of the changes semi-diagrammatically figured in Fig. 4 supra.

Fig. 18.

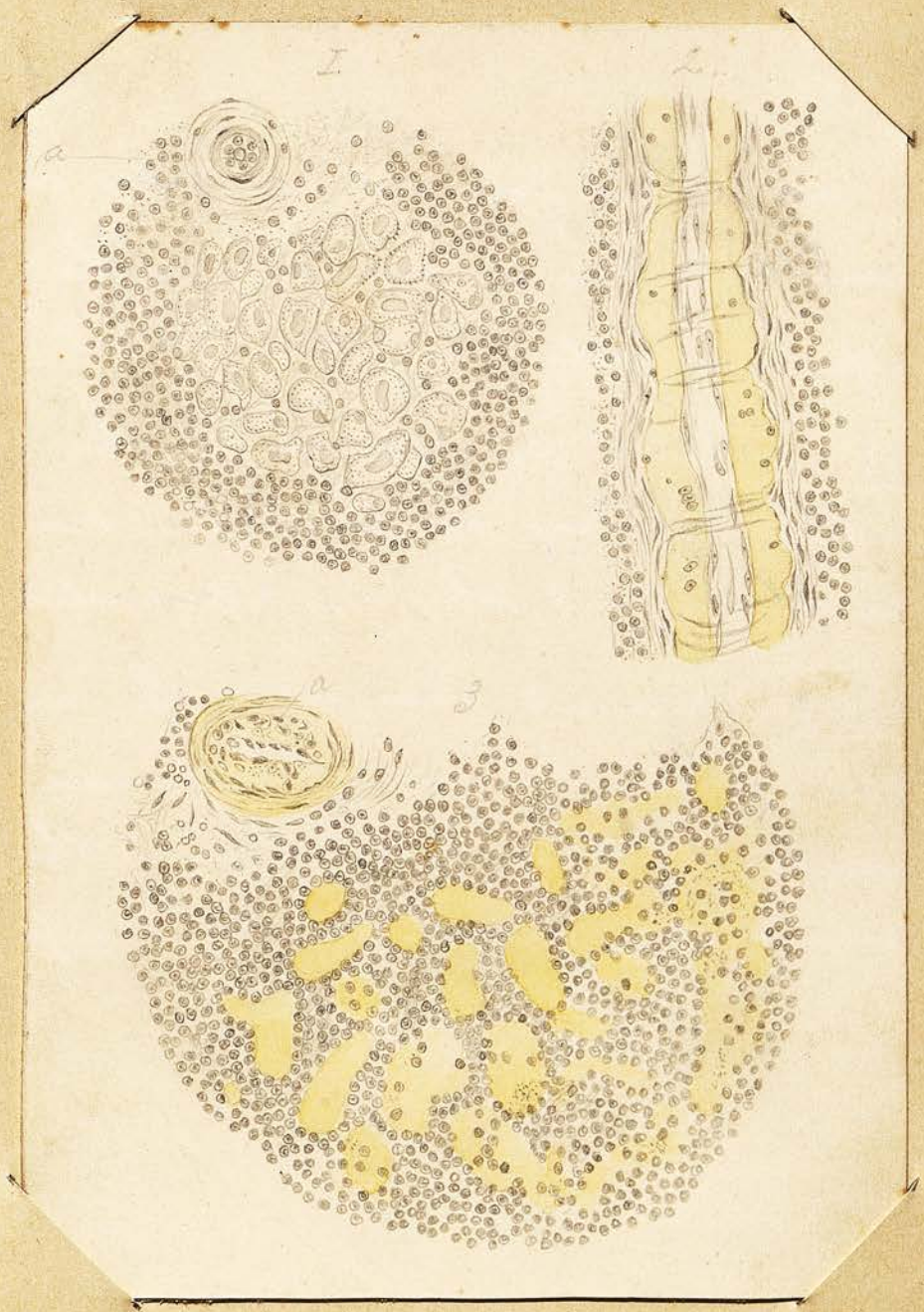


Fig. 19

Fig. 20

after Stilling.