TRANSACTIONS
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NOTES ON A CASE OF CIRRHOSIS AND FATTY
LIVER, SHOWING PRIMITIVE TUBULAR
ARRANGEMENT OF THE EPITHELIUM.

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I AM indebted to Dr. H. T. Bewley for permission to show these specimens from a case under his care in the Adelaide Hospital. The clinical notes which he has supplied are as follows :—

A young woman, aged about 25 years, was admitted into the Adelaide Hospital in October, 1914. Her history was that in the previous February she had become affected with jaundice. This had continued and increased very gradually. Still, she had felt pretty well till a week before her admission. Then she became dull and stupid, and the torpor increased till she became unconscious. On admission she was almost quite unconscious, she was deeply jaundiced, the urine contained much bile, yet the fæces were by no means pale. Her heart was weak and the temperature normal. She remained in hospital for two

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days, the unconsciousness increasing to complete coma, then she died.

At the autopsy it was found that the liver was somewhat smaller than normal. On section it was mottled with light yellowish patches about 3-4 mm. in diameter. Pressure between the finger and thumb suggested greater resistance than normal. The kidneys were pale, but otherwise did not appear very much abnormal. Microscopical sections of both these organs were made subsequently after fixation. The liver shows mainly monolobular cirrhosis. Bands of connective tissue, containing in places some small round-cell infiltration, and a few, so-called, "bile ducts," run between the lobules, separating them as somewhat round or oval areas. (Fig. 1.)

Some of these areas are in a condition of cloudy swelling and stain badly. In others the margins only show cloudy swelling, while the central portion stains particularly well. Here the liver is arranged in very small spots with the blood capillaries plainly visible between them, being apparently larger and more easily seen than is usually the case. (Fig. 2.)

With a high power these small epithelial masses are seen to be composed of groups of six or eight epithelial cells lying closely together, very much suggesting a glandular arrangement. (Fig. 3.) A few are elongated and bent, while here and there one may see a transparent spot in the centre suggesting the position of the bile duct.

In hæmatoxylin stained specimens small transparent vacuoles could be seen, these were shown later to be fat droplets. Some specimens were stained by Sudan III., the fat being thus made very evident. These droplets of fat could now be seen to be arranged definitely in relation to the groups of cells previously described, forming a zone

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FIG. 1.

Showing cirrhosis and two lobules. Lower lobule cloudy swelling,
upper lobule cloudy swelling at margin, tubular epithelium
at centre. Hæmatoxylin. x 40.

FIG. 2.

Showing epithelium with tubular arrangements separated by capil-
laries. Hæmatoxylin. x 100.

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FIG. 3.

Epithelium in circular masses (sections of acini). Many of these
contain light coloured droplets of fat. Hæmatoxylin. x 400.

FIG. 4.

Sections of acini with droplets of fat (black) close to margin of cells.
Sudan III. x 400.

in the outer part of what could be regarded as the acini of a gland. (Fig. 4.)

The kidney showed, by similar methods of staining, ordinary fatty degeneration of some of the tubules in small areas, the whole of the lobules not being affected. The general appearance of these fatty tubules bore a striking resemblance to that seen in the liver.

In discussing the reason for these appearances, one must first remember that the liver is developed like the pancreas as an outgrowth from the primitive intestinal tube of the embryo, and as such is a potential gland, always retaining the functions, while some animals, such as amphibians and reptiles, retain the structure of a tubular gland. This liver appears in its degeneration to have reverted to its original type of structure, and thus made evident the arrangement of cells with regard to the bile duct which is described but not often seen.

In most forms of cirrhosis small tubular arrangements of epithelium may be seen in the newly formed connective tissue, the so-called bile ducts. It has often been suggested that these are not really newly formed bile ducts, firstly, because in that form where they occur most numerous the bile does not flow easily to the intestine, but rather enters the blood by the lymphatics, giving rise to jaundice; and secondly, from the developmental consideration cited above, that they may be the primitive tubes of the liver, the cells of which having lost their function from the connective tissue pressure, or other cause, lose in consequence their highly specialized type of nucleus and cytoplasm, and became ordinary cubical cells as a stage in their further degeneration.

The liver which is shown to-night lends extra weight to this latter view.

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DR. W. BOXWELL said that he had met with a somewhat similar condition in a case of primary cancer of the liver.

PROFESSOR METTAM said the sections had almost the characters of an adenoma.

THE PRESIDENT commented on the unusual condition, but could not go so far as to say that it had a distinctly adenomatous structure. He discussed the nature of the so-called newly-formed bile ducts met with in cases of cirrhosis.

PROFESSOR SCOTT, in replying, said that the vacuolated appearance in the centre of the lobules gave the appearance of a lumen, and drew attention to the peripheral distribution of the fat, which was a contrast to the diffuse fatty change usually met with in cases of advanced cirrhosis.