27 (437)

The survival of engrafted thyroid and renal tissue.

By **C. C. GUTHRIE.**

[*From the Physiological Laboratories of Washington and Pittsburgh Universities.*]

THYROID.

One lobe of the thyroid of a dog was removed and replaced with reversal of the circulation, *i. e.*, the central end of the superior thyroid artery was anastomosed to the peripheral end of the superior thyroid vein, and the central end of the vein was anastomosed to the peripheral end of the artery.

After a lapse of more than two years the lobes of the gland were compared and specimens were taken and examined microscopically.

Results. — The unoperated lobe in size was somewhat hypernormal (perhaps compensatory hypertrophy) and microscopically showed hyperplasia. The operated (auto-engrafted) lobe in size was hyponormal. Structurally, it was markedly fibrous; but it was found to contain cellular elements which appeared normal and normally staining colloid, the arrangements and proportions being abnormal.

KIDNEY.

In 1905 whole kidneys were engrafted in both cats and dogs with excellent temporary success, but in all cases where all the original renal tissue was removed, the animals invariably died within a few weeks. At post mortem such kidneys showed more or less degeneration. The immediate result appears to be a congestion, accompanied, in some instances at least, with more or less extensive interstitial hemorrhages. Cloudy swelling quickly ensues and later more pronounced degenerative processes leading to the disappearance of the normal cell structure.

In another experiment one kidney was removed from an adult female cat and a kidney from an adult male cat was engrafted in the place previously occupied by the kidney removed, the renal artery being anastomosed to the aorta, the renal vein to the vena cava and the ureter to the stump of the ureter previously divided.

As previously reported (*Jour. of the American Med. Assoc.*, 1908, li, 1658), the cat did not survive the functional test (removal of the remaining original kidney) made over a year later.

Results. — Structurally, the engrafted kidney was very fibrous. Histologically, a reminiscence only of normal renal structure remained, it being possible only with care to trace the glomeruli and the beginning of the tubular structures.

28 (438)

The effect of anemia and of double hyperemia on hyperplastic goitre.

By **C. C. GUTHRIE.**

[*From the Physiological Laboratories of Washington and Pittsburgh Universities.*]

In a dog showing a bilaterally symmetrical hyperplastic goitre, Dog 16, the following vascular changes were made:

A. Anemia, left side:
   1. Ligation of the left common carotid and superior thyroid arteries.

B. Double hyperemia, right side:
   1. Ligation of the internal jugular vein below the mouth of the inferior thyroid vein and above the superior thyroid vein (passive hyperemia).
   2. Section of the internal jugular vein below the origin of inferior thyroid vein and anastomosis of the distal end to the central end of the left common carotid artery.

Results. — Clinically, on the left side (anemic), no marked change was observed. On the right side (hyperemic), a great temporary swelling followed by a marked decrease in size of the right lobe occurred. Seven months later the left lobe measured 8 by 4.5 by 3 centimeters, and the right lobe measured 5 by 2.5 by 2 centimeters.

Structurally, the right lobe was more fibrous than the left and there appeared to be present a larger proportion of normally staining colloid.