

bladders was always much less after cystic duct ligation. This of course could not be measured quantitatively but it was grossly quite apparent.

Jaundice had no effect on the procedure. When common duct ligation as well as cystic was done the average for the series was 41.6 mg. per 100 cc. Common duct ligation alone leaving the cystic duct open gave an average of 39.9 mg. per 100 cc. for the cystic bile.

Studies on the gall bladder from dogs with cystic duct ligatures were made at intervals of 2 months. In the later observations in each case the calcium content had been reduced 40-50%.

Some of our dogs showed severe inflammatory changes in the gall bladder, and 4 developed actual empyema. In these the bile calcium was lowest of all the series falling within the range of normal liver bile.

The experiments recently reported by Wilkie<sup>1</sup> indicated that in rabbits experimental infectious cholecystitis gave rise to cholesterol stones if the cystic duct was open and to calcium ones if it was ligated. Our experiments were done on dogs as rabbits' gall bladders are too small to get adequate samples for chemical study. They certainly do not indicate that there is a concentration of bile in the gall bladder after cystic duct ligation.

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**Simultaneous Direct and Indirect Blood Pressure Determinations.\***

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In experiments on dogs, Erlanger<sup>1</sup> found that the direct blood pressure in the femoral artery was but slightly higher than the indirect pressure. Kolls<sup>2</sup> and Allen<sup>3</sup> found very little difference between the results of cannulation and the auscultatory method of blood pressure determination on both normal unanesthetized and

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<sup>1</sup> Wilkie, A. L., *Brit. J. Surg.*, 1928, **15**, 450.

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<sup>1</sup> Erlanger, J., *Am. J. Physiol.*, 1915-16, **30**, 401.

<sup>2</sup> Kolls, A. C., *J. Pharm. and Exp. Therap.*, 1920, **15**, 443.

<sup>3</sup> Allen, F. M., *J. Met. Research*, 1923, **4**, 431.

etherized dogs. Rühl<sup>4</sup> found the direct carotid pressure in rabbits to be fairly comparable to the bleeding time of the vessels of the leg.

The following experiments are reported because of the marked variation found between direct and indirect blood pressure determinations.

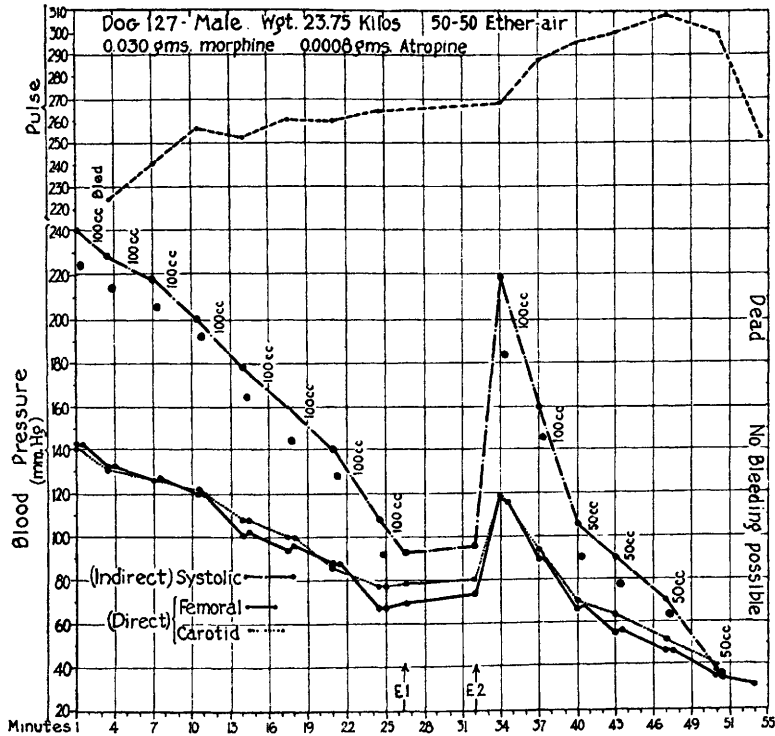


FIG. 1.

Direct and indirect blood pressure and pulse curve during the production of shock.

⊙ Indicates points where bleeding began.

E<sub>1</sub> Intramuscular injection of 150 mgm. ephedrine.

E<sub>2</sub> Intravenous injection of 150 mgm. ephedrine.

Etherized dogs varying in weight from 6.6 to 29.4 kgm. were used. Direct blood pressure readings were obtained from both left carotid and left femoral arteries, which were connected with mercury manometers and a kymograph. A sphygmomanometer cuff and stethoscope bell were used on the left hind leg to determine the auscultatory indirect blood pressure. In 14 experiments the indirect readings were from 20 to 100 mm. of mercury higher than the direct. Observations of the beginning flow of blood from the femo-

<sup>4</sup> Rühl, A., *Arch. f. Exp. Path. Und Pharmacol.*, 1929, 139-40, 257.

ral artery during gradual deflation of the cuff were recorded. Bleeding occurred at a pressure below but much nearer the indirect than the direct. Thus there was a transmission of sound through the artery after the disappearance of bleeding. When shock was produced by intermittent bleeding from the carotid artery, the indirect pressure readings tended to more nearly approximate the direct readings.

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### Bilateral Localization of Prospective Thyroid in the Early Chick Blastoderm, Studied in Chorio-Allantoic Grafts.

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The vascularized chorio-allantoic membrane of the chick is considered a practically neutral medium in which potencies of embryonic areas may be tested. This technique of chick embryology has been described by Willier.<sup>1</sup>

Histological examination of grafts of the whole pellucid area of blastoderms of the head-process stage, allowed to remain 8 or 9 days on the host membrane, shows normal or almost normal differentiation of a great many tissues: among these thyroid.<sup>2</sup> Embryonic organization at this stage is better revealed in grafts of definite isolated parts of the blastoderm. The study\* to be reported has been made on such transplants with regard to the thyroid.

Two types of graft from the head-process stage have been analyzed with reference to differentiation of the thyroid. In the first series, the area pellucida anterior to the level of the primitive node was divided by a median cut into right and left halves: these pieces were grafted separately. In the second series, the same area was divided longitudinally into 3 parts. An attempt was made to keep the width of the median piece that of the node, or slightly greater. In this series, left, median, and right pieces were transplanted separately.

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<sup>1</sup> Willier, B. H., *Am. J. Anat.*, 1924, **33**, 68.

<sup>2</sup> Willier and Rawles, *J. Exp Zool.*, in press.

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