The small changes in diameter of the vena cava of the dog observed by us during respiration do not appear sufficient to produce a significant amount of churning or turbulence regardless of the position of the animal. The churning of the blood described by several workers must be caused by other factors. When the dog is lying on its side changes in diameter are so slight that they may be disregarded. On the basis of this investigation, it appears that thermal and electric contacts with the thermostromuhr unit may be maintained satisfactorily during observations of blood flow, provided care is taken in applying a unit of the proper size. However, turbulence might introduce errors in the values obtained.

Summary and Conclusions. A method of visualizing, roentgenologically, blood vessels such as the vena cava is described. Significant changes in the diameter of the thoracic portion of the posterior vena cava were not observed when the dog was lying on its side. Slight changes in diameter occurred during the respiratory cycle when the dog was standing. The changes in diameter were too insignificant, even in the standing position, to interfere with thermal and electric contacts when the thermostromuhr method of measuring blood flow is used.

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Mitotic Index of Hyperplastic Interstitial Cells of the Guinea Pig.*

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The interstitial cells of Leydig increase both in number and in size when certain gonadotropic hormones are injected. Mitoses are infrequently seen and the source of the new cells is not known. A study was planned which might give some information on this point.

Seventeen immature guinea pigs (190-230 g) were injected daily with 25 R.U. of PU (Follutein, Squibb) for 1-8 days. Animals were autopsied after 2, 4, 6, and 8 days of injections. On

* Aided by a grant from the Committee for Research in Problems of Sex, National Research Council, administered by Dr. Philip E. Smith.

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the last day of treatment, 0.1 mg of colchicine was injected and the animals sacrificed about 9 hours later. Three guinea pigs were used as colchicine controls and 2 were untreated. The testes and accessories were fixed in Bouin's fluid and stained with haematoxylin and eosin. The average number of Leydig cells per high power field for 130 random samples for each dosage level and mitoses per thousand cells were counted and recorded. In sections of the prostate gland of the same animals, the number of cell divisions per thousand cells was also counted.

In the animals treated with pregnancy urine extract, there is a great increase in the number and size of the cells of Leydig. The degree of response varies with the length of treatment. The data are graphically presented in Fig. 1. Line A of the figure shows the average number of Leydig cells per high power field. In the control testes (Bouin fixation), it is difficult at times to distinguish with certainty the Leydig cells from fibroblasts, histiocytes, and undifferentiated cells in the intertubular mass. This is easily done after hormonal stimulation. The cytoplasm becomes more abundant, acidophilic and granular, while the nucleus becomes more spherical.

An increase in mitotic divisions does not parallel the increase in number of interstitial cells, as can be seen in line C of the graph. These animals have been treated with colchicine, after the Dustin technic. This drug maintains cell divisions at metaphase for about

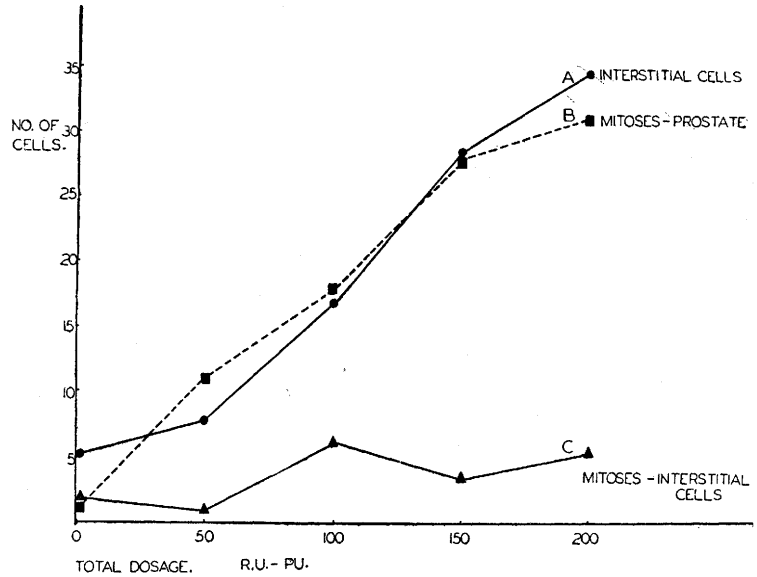

FIG. 1.

9 hours. The number of these mitoses is relatively constant and cannot possibly account for the increase in the number of Leydig cells.

Line B represents the number of mitoses per thousand epithelial cells in the prostate gland of the same animals. Within the duration of the experiment, the longer the treatment with PU, the greater the number of mitoses occurring in a unit of time, showing that these cell divisions will vary directly with the duration of the hormonal stimulation.

Conclusions. The scarcity of cell divisions among the interstitial cells of the testes of PU-treated animals makes unlikely the conclusion that the increase in the number of these cells is due, except to a slight degree, to their mitosis. Observations were presented which support the opinions of Esaki,[1] and others that the interstitial cells have an extrinsic origin. Other data, to be presented elsewhere, indicate that certain intertubular connective tissue elements are differentiated into active secreting Leydig cells by the action of the gonadotropic hormones of pregnancy urine.

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Relationship Between Inactivated Prolan and Antiprolan.

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Prolan is a protein-containing hormone in which a protein-like component (carrier) is bound to a comparatively small prosthetic group (active part).[1] While dry prolan powder is very stable prolan solutions are easily inactivated by heat, oxidation and ultraviolet rays[1] although neither ultra-red, red or blue light-rays nor roentgen- or radium-rays affect prolan solutions.[2] The thermo- and photosensitivity of prolan must be due to the presence of the protein-like factor bound to the prosthetic group.

The present investigations concern whether the capacity of prolan to form antiprolan is connected with the prosthetic factor, with

[1] Esaki, S., *Z. Mikro. Anat. Forsh.*, 1928, **15**, 368.

[1] Von Euler, H., and Zondek, B., *Skand. Arch. Physiol.*, 1934, **68**, 232.

[2] Zondek, B., *Hormone des Ovariums und des Hypophysenvorderlappens*, 2nd edition, Springer-Vienna, 1935, p. 252.