the absorptive areas; in the ascending colon 2 to 3 cm. lengths were ligated, while 5 cm. lengths were used in the other 2 sections. The absorptive area in the ascending colon was, therefore, if anything smaller than that in the spindle or the descending colon.

Either an autopsy or a biopsy was made on every animal to determine the condition of the ligated sections of the gut, the normality of the kidneys and of the animal in general.

The main results are shown in Table I.

The results indicate that efficient absorption of strychnin is best in the ascending colon, less in the spindle and least in the descending colon.

7741 P

A New Development in Histospectrography.*

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Histospectrography, as developed by Policard,[1] and by Gerlach and Gerlach,[2] is a method of examining the elements in tissues which consists of passing a high frequency spark through a predetermined area in a section of tissue and by means of the spectrograph analyzing the rays emitted. The spectrograms will contain the lines characteristic of the elements encountered by the spark in passing through the tissue. It has been pointed out by Policard[1] and Gerlach and Gerlach[2] that one of the greatest difficulties encountered is the selection of electrodes; not only do the characteristic lines of the major element of the electrodes appear on the spectrum, but also those of even small impurities in the metal. In the course of our experiments with the technique, a means was devised whereby the purity of the electrodes is rendered immaterial, and the choice of basic metal almost so. In fact, for all practical purposes, our spectrograms contain lines characteristic only of the tissue.

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[1] Policard, A., *Protoplasma*, 1933, **19**, 602.

[2] Gerlach, W., and Gerlach, W., *Die chemische Emissions-spectralanalyse. II Teil Anwendung in Medizin, Chemie und Mineralogie.* 1933. Voss, Leipzig.

The tissue support assembly differs entirely from that employed by other investigators. Policard supports tissue sections for analysis on a metal plate, which forms the lower electrode of the spark gap, carried by a special mechanical stage to permit the selection of the area to be sparked while it is under observation with a microscope. The upper electrode is a metal point immediately above the tissue. Gerlach and Gerlach's apparatus differs from Policard's in that a glass plate is interposed between the specimen and the base plate. With both procedures the possible area of localization is of the order of 1 mm. in diameter and lines are photographed from one or both electrodes.

It seemed to us that this large area of localization rendered the name "histospectrography" purely academic and made unnecessary microscopic observation while sparking. Hence, we select the areas before sparking by removing them as 1 to 3 cmm. segments by means of a corneal trephine or small scissors. These small bits of (fresh) tissue are placed on the ends of short lengths of pyrex glass rod, 2 to 3 mm. in diameter, where they adhere and are allowed to dry partially. Such specimens are rapidly and easily prepared and with no more possibility of contamination from the metals of the instruments used than in the case of obtaining tissue slices.

We then profit by the fact that for sparks which are not too intense the spectral lines from metallic electrodes are emitted at or near the surfaces of the electrodes. We use ordinary steel electrodes about 1.2 cm. apart and screen off from the spectrograph slit all light except that from about 5 mm. at the center of the spark. The tissue bits are inserted on their pyrex rods into the central portion of the spark and burned. Only the longest of the test exposures of air, glass and electrodes alone show traces of iron. Consequently there is little possibility of electrode impurities being registered on the plate, and with routine examinations of tissue specimens even the spectral lines of iron from the electrodes can be regarded as being absent (especially as iron is nearly always present in variable amounts due to traces of blood). However, since it is a simple procedure to change electrodes it is advisable to use some other metal than any particular one sought, if only to be doubly safe.

If it seems preferable for any reason to keep sections of organs under continuous observation while the selected areas are being burned, this is easily accomplished with the same electrode and screen set-up. A glass plate with a 3 mm. hole in the center is used to support the section. The spark passes through the tissue and the opening in the glass plate. In many instances it is desirable to have,

for comparison, spectrograms of known solutions. These are obtained by soaking a small roll of ashless filter paper in the solution and introducing it into the center of the spark. Strips of epidermis may be cut and held in small pyrex glass tubes and burned in the same way.

The high frequency generator used in our experiments is similar in design to that employed by the previously mentioned authors. Certain modifications were necessary, however, before the apparatus was adaptable to our purposes. These and other technical details will be fully described later.

With the techniques described, using a Gaertner L 250 W quartz spectrograph, we have experienced no difficulty in obtaining strong lines of Ca, Mg, K, Na, Fe, Cu, and P in a large variety of tissues examined.

7742 C

Action of Parathyroid Hormone in Normal and Hypophysectomized Pigeons.*

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Current studies of this laboratory on the relation of the various anterior pituitary hormones to carbohydrate and calcium metabolism made it necessary to learn whether the parathyroid influences the blood calcium level in pigeons as it is known to do in certain other animals. Data on this latter point only are presented here. Collip[1] has shown that mammalian species show extraordinary differences in their response to the parathyroid hormone, and could demonstrate no effect of the hormone on non-laying hens. Concurrently with the present study Hutt[2] observed in a case of idiopathic hypoparathyroidism in which the normal serum calcium level was restored with parathormone. Macowan[3] found parathormone to have no effect on the blood calcium of moulting hens.

Sugar was determined by the Hagedorn-Jensen method, calcium

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1 Collip, J. B., *Can. Med. Assn. J.*, 1931, **24**, 646.

2 Hutt, F. B., and Boyd, W. L., *Endocrin.*, 1935, in press.

3 Macowan, M., *Quart. J. Exp. Physiol.*, 1932, **21**, 383.