

of penetration were begun promptly after the spermatozoa were brought into contact with the column of mucus. In many cases the spermatozoa on finding the mucus medium particularly favorable, *i.e.* during the ovulatory phase, could be observed to pass through the entire length of the mucus column, an average distance of 25 mm, without apparent deceleration. However, in the pre- and post-ovulatory phases of the cycle when the mucus was more viscid and cellular, the entire distance to which they could penetrate averaged only 1.4 mm. There was no apparent difference between the distances penetrated by the unwashed and the washed spermatozoa.

In all, 42 semen specimens coming from 4 donors were used. These specimens ranged in volume from 0.6 to 4.2 cc and in count from 34 million to 262 million per cc. We were unable, in these studies, to correlate the degree of penetrability of the mucus with the concentration of spermatozoa, either unwashed or washed.

Summary. This study indicates that washing human spermatozoa with Ringer's solution and resuspending the washed spermatozoa in this solution does not impair their ability to penetrate a column of cervical mucus *in vitro*.

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Uneven Distribution of Glycogen in the Liver.*

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A strikingly uneven distribution of glycogen in the liver of rabbits was found in the course of experiments in which an attempt was made to follow with biopsies the variation in liver glycogen under various conditions. Irregularities in the intracellular ("glycogen flight") and intralobular¹ distribution of glycogen have been known for some time. Recently, Deane, Nesbitt and Hastings² have found significant differences in the glycogen content of the two lobes. Since it is obvious that such observations tend to limit the value of liver biopsies in judging the metabolic state of the organ, a short report appears to be warranted.

Experimental. Rabbits were fasted for 18 to 24 hr and laparotomized under sodium

pentothal anesthesia. On gross inspection no difference in the appearance of the lobes of the liver was noted. Simultaneous wedge shaped specimens weighing 1000 to 1500 mg were removed from different parts but usually from the same lobe of the liver. Where biopsies were taken at intervals Gelfoam proved very helpful in the control of bleeding. Subsequent biopsies were taken from sites far away from that of the previous resection.

The present report is concerned only with variations observed in simultaneous biopsies. The specimens were cut into 3 portions. The middle slice was fixed promptly in chilled 90% alcohol or Bouin's fluid, embedded, and the sections stained with Best's carmine, Bauer-Feulgen's method³ and a silver stain.⁴ The two lateral portions were weighed and dropped immediately in 30% KOH for the chemical determination of glycogen according to Good, Kramer and Somogyi;⁵ the glucose

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¹ Edlund, Y., and Holmgren, H., *Z. f. mikr-anat. Forsch.*, 1940, **47**, 467.

² Deane, H. W., Nesbitt, F. B., and Hastings, A. Baird, *Proc. Soc. Exp. Biol. and Med.*, 1946, **63**, 401.

³ Bauer, H., *Z. f. mikr.-anat. Forsch.*, 1933, **33**, 143.

⁴ Gomori, G., *Am. J. Clin. Path.*, 1946, **10**, 177.

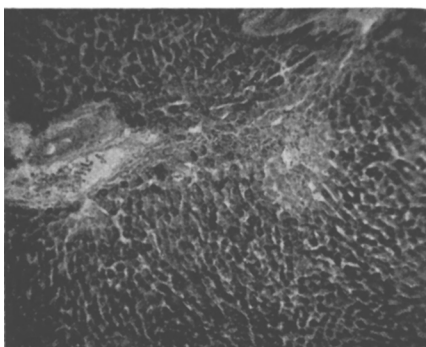


FIG. 1.
Rabbit 52E, biopsy 1. $\times 80$.



FIG. 3.
Rabbit 48, biopsy 3. $\times 25$.
All slides stained with Bauer-Feulgen's stain.

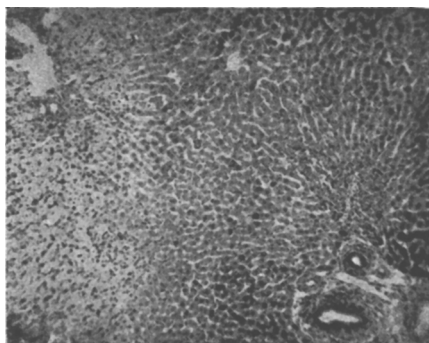


FIG. 2.
Rabbit 52E, biopsy 3. $\times 80$.

formed was determined by the colorimetric method of Folin and Malmros,⁵ a photo-electric colorimeter being used.

Table I shows the marked variation in the amount of glycogen found in simultaneous biopsies, the range sometimes exceeding several 100%. The histologic pictures, as far as one can judge from the extent and intensity of the stain, were in good agreement with the

⁵ Folin, O., and Malmros, H., *J. Biol. Chem.*, 1929, **83**, 115.

⁶ Good, A., Kramer, H., and Somogyi, M., *J. Biol. Chem.*, 1933, **100**, 485.

chemical findings, as shown in Fig. 1 and 2. Fig. 3 demonstrates furthermore that even in the very same slide extensive areas of high and low glycogen content may be found side by side.

It should be mentioned that the distribution of fat in the sections, unlike that of glycogen, appeared to be quite uniform.

TABLE I.
Variation in Glycogen Content of Simultaneous Liver Biopsies. (% of wet weight.)

Rabbit No.	Biopsies		
	1	2	3
48	0.23	0.4	1.6
51 E	0.74	0.9	0.65
52 A	1.6	2.4	—
52 E	1.8	1.5	0.5
53 A	4.2	5.1	—
53 E	2.6	3.5	1.8

Summary. Great caution is warranted in judging the metabolic state of the liver on the basis of the glycogen content of biopsies since variations exceeding several 100% may be observed in simultaneous biopsies taken from the same lobe of the rabbit's liver.