lactogen content in the male as well as the female at the time of puberty. Per gram of pituitary, the mature male and female guinea pigs have the greatest concentration of lactogen of all species so far studied when not in lactation.

Summary. While the lactogen content of the AP of the male rabbit is very low and almost constant during all phases of growth and adult life, that of the male guinea pig increases very rapidly at puberty and even exceeds the content of the mature non-lactating female. In the case of the females of both species, there is a marked rise in the lactogen content of the AP associated with increased ovarian weight at sexual maturity. In a comparison of species, on the basis of the lactogen per gram of AP, it was observed that the mature female guinea pig ranks first with about 600 B.U., the albino rat second with about 500 B.U., and the rabbit third with about 300 B.U.

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Inhibitory Action of Peptone on Sulfapyridine Adsorption.*

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The bacteriostatic effect of sulfapyridine on the pneumococcus *in vitro* and the inhibitory action of peptone have been shown previously.[1] The findings compare with those reported by Lockwood,[2] who studied the effect of sulfanilamide on the streptococcus under similar conditions. The effect of peptone in preventing drug-action suggested the possibility of an interference in adsorption of the drug. To test this, a study was made of the adsorption of sulfapyridine by activated carbon particles.

Varying amounts of activated carbon were added to solutions containing 10 mg of sulfapyridine and 0.85 g of sodium chloride per 100 cc. After allowing the reaction to take place for 15 minutes, the carbon was removed by filtration, and the filtrate was tested for the presence of the drug by the method described by Marshall.[3] Adsorption was found to occur, as shown in Fig. 1 (solid line).

* Aided by a grant from the Medical Research Fund of the Graduate School.

1 Hoyt, R. E., and Levine, M., PROC. SOC. EXP. BIOL. AND MED., 1939, **40**, 465.

2 Lockwood, J. S., *J. Immun.*, 1938, **35**, 155.

3 Marshall, E. K., Jr., and Litchfield, J. T., Jr., *Science*, 1938, **88**, 85.

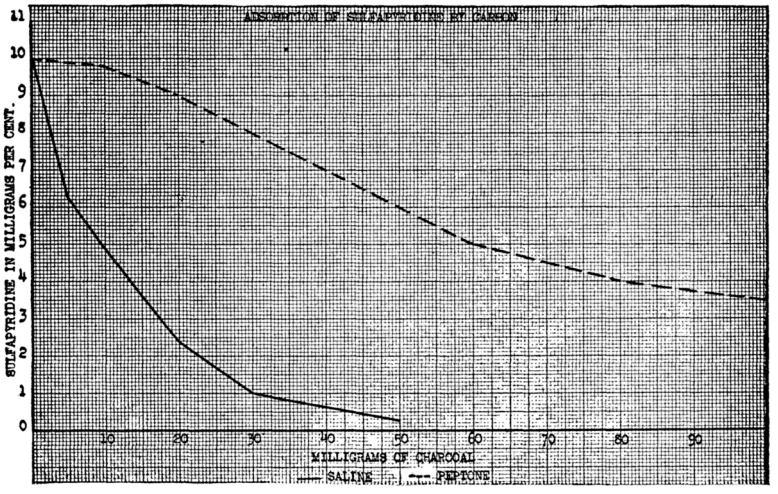

FIG. 1.

If 1% peptone (Parke-Davis) is added to the solution containing the drug, and adsorption by carbon allowed to take place, the removal of the drug is retarded. This is shown in Fig. 1 by the broken line. That this adsorption is selective is illustrated by the following experiment: 2 cc of a 1:1000 solution of sulfapyridine were added to 8 cc of saline, and adsorbed with 20 mg of carbon. After 15 minutes, the mixture was divided into 2 parts; to one, 5 cc of 0.85% saline was added, and to the other 0.85% saline containing 1% peptone. These were allowed to stand for another 15 minutes, when they were filtered and tested for sulfapyridine. The portion to which saline had been added showed adsorption of 73% of the drug, as compared with a removal of 55% in the portion to which peptone had been added. This suggests that peptone is able to displace the drug from the surface of the carbon particles.

That adsorption occurs specifically, depending on the nature of the polar groups, has been demonstrated by the work of Jones,[4] who showed that proteins are adsorbed on special patches of collodion particles. He adsorbed 5 different proteins, and by immunological methods was able to show that none interfered with the adsorption of the others. Since peptone is composed of various amino-acids, among other constituents, it was decided to investigate the effect of individual amino-acids on the inhibition of adsorption of the drug in order to detect specific groupings responsible for this action. The acids tested, with the resulting inhibitions, are listed in Table I.

[4] Jones, F. S., *J. Exp. Med.*, 1928, **48**, 183.

TABLE I.

Amino-acid	Drug remaining (mg per 100 cc)	% inhibition
Tryptophane	5.9	50
Tyrosine	3.6	44
Phenyl-alanine	3.2	44—
Alanine	1.8	None
Glycine	1.8	None
Histidine	2.0	None
Cystine	1.6	None
Proline	2.1	None
Control	1.9	—

From the above data, it is evident that the amino-acids containing aromatic groups are able to inhibit the adsorption of the drug by activated carbon. These experiments suggest the possibility that peptone, or certain of its constituents, may interfere with the adsorption of the drug on bacterial surfaces.

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Protective Action of Sulfapyridine Against Type II Pneumococcal Infections in Mice.*

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The remarkable results obtained by Whitby[1] in the treatment of pneumococcal mouse-infections with sulfapyridine† (M. & B. 693) have led to widespread use of this sulfanilamide derivative in experimental work. Several series of experiments, herein reported, have been conducted by a method of drug-administration quite generally neglected. This method briefly consists of mixing the drug to be studied with ground food, in any concentration selected, and allowing the mice to ingest it with their food. Hunt,[2] working in Ehrlich's Institute, also incorporated drugs in ground animal-food. The de-

* Aided by grants from the Medical Research Fund of the Graduate School of the University of Minnesota.

1 Whitby, L. E. H., *Lancet*, 1938, **1**, 1210.

† Merck & Co., Inc., generously supplied the sulfapyridine used in these experiments.

2 Hunt, R., personal communication to E. K. Marshall, Jr., 1939.