

TABLE I.

Scarlatinal		Erysipelas		Source	Miscellaneous	
Size of skin lesion in mm.	Abscess Formation	Size of skin lesion in mm.	Abscess Formation		Size of skin lesion in mm.	Abscess Formation
{ 10 x 10	—	{ 30 x 15	+	Meningitis	{ 10 x 10	—
{ 10 x 10	—	{ 20 x 15	—		{ 10 x 10	—
{ 15 x 15	—	{ 25 x 20	+	Adenitis	{ 15 x 10	—
{ 10 x 10	—	{ 20 x 20	+		{ 10 x 10	—
{ 10 x 10	+	{ 25 x 20	+	"	{ 15 x 10	—
{ 15 x 15	—	{ 35 x 30	+		{ 10 x 10	—
{ 25 x 25	+	{ 15 x 15	—	Meningitis	{ 10 x 10	—
{ 15 x 15	—	{ 15 x 15	—		{ 10 x 10	—
{ 10 x 10	—	{ 20 x 20	—	Abscess	{ 20 x 15	+
{ 10 x 15	—	{ 30 x 25	+		{ 15 x 10	—
{ 15 x 10	+	{ 15 x 10	—	Stock	{ 10 x 10	—
{ 10 x 10	—	{ 15 x 10	—	Mastoid	{ 10 x 10	—
				80A		
{ 15 x 10	+	{ 30 x 25	—	Stock	{ 15 x 10	—
{ 10 x 10	—	{ 20 x 20	—	Dick II	{ 15 x 10	—
{ 10 x 10	—	{ 15 x 15	—	Stock A I	{ 15 x 15	—
{ 10 x 10	—	{ 10 x 10	—	Birkhaug	{ 15 x 15	—
				Erysipelas		
{ 15 x 15	+	{ 10 x 10	—	Stock	{ 10 x 10	—
{ 15 x 10	—	{ 10 x 10	—	N. Y. 5	{ 10 x 10	—
{ 15 x 10	—	{ 15 x 15	+	Stock	{ 10 x 10	—
{ 15 x 10	—	{ 10 x 10	—	Mastoid	{ 10 x 10	—
				80B		

imately the same size as before and averaged 4.5 sq. cm. Each of the scarlet fever strains was found to involve a larger skin area than previously, the average size being 4.8 sq. cm., or an increase to the size of the lesion resulting from the erysipelas organisms.

While the experiments indicate that streptococci freshly isolated from erysipelas produce slightly larger skin lesions in rabbits than strains from other sources, this property is apparently not attributable to strain specificity since organisms from scarlet fever can after animal passage attain the same degree of skin infectivity as those from erysipelas.

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Effect of Gonadotropic Hormone Injections upon Hypophyses and Sex-Accessories of Experimental Cryptorchid Rats.

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The effects of castration upon the anterior hypophysis and accessory sex organs are well known and have been interpreted as re-

sulting from the withdrawal of one or more testicular hormones. Recently, in a study involving an examination of the hypophyses, testes, seminal vesicles, and prostates from 73 cryptorchid and 52 castrate rats it was shown¹ that elevation of the testis into the abdomen (experimental cryptorchidy) at the 40th day of life produced results similar, although retarded, to castration. Changes which definitely indicated a decreasing output of testicular hormone were apparent in the hypophysis regularly at 75 days and in the seminal vesicles at 240 days, post-operation. In the prostates the changes up to 400 days post-operation are barely suggestive of a hormone threshold slightly below that necessary for prostatic maintenance. These results may be correlated with the hormone required for the maintenance of the respective end-organs.¹

The hypophyses of 360 day cryptorchid rats present a picture similar to that of advanced castration. Cell counts, which have been made regularly, show a marked increase in basophiles, a slight decrease in acidophiles, a more marked decrease in chromophobes, and many castration cells. The testes show no evidence of spermatogenesis and the epithelium of the seminiferous tubules is reduced to Sertoli cells with few if any spermatogonia. Interstitial cells appear to be more numerous, but it is not certain that the increase is more than an apparent one coinciding with tubular decrease. The cells of the seminal vesicle epithelium are low cuboidal to flat and without secretion granules. The prostates are essentially normal in size and cytology. It would seem that the testes of 360-day cryptorchid rats are secreting a small amount of hormone, *i. e.*, enough for prostatic maintenance, but not sufficient to maintain normal seminal vesicles and hypophyses.

Nine 360-day cryptorchids were operated and one testis, one seminal vesicle, and a sample of prostate were removed, weighed, and studied microscopically. The animals were then divided into 3 groups and injected with 50 R.U. Antuitrin S* daily for 10, 20, and 30 days. At the close of the injection periods the animals were sacrificed and, in each instance, the hypophysis, remaining cryptorchid testis, and sex accessories were removed, weighed and studied.

The seminal vesicles removed after injection were approximately 9 times as heavy as those removed for control purposes. Microscopic study showed complete restitution in each instance. The epithelial cells were high columnar with many clearly defined secretion gran-

¹ Nelson, W. O., *Anat. Rec.*, 1934, **58**, 30.

* Antuitrin S kindly furnished by Dr. Oliver Kamm, Parke, Davis and Company.

ules. The prostates, too, showed definite evidence of stimulation. These results can be interpreted only as evidence that the treatment had stimulated production of testis hormone.

The anterior hypophyses presented pictures varying with the duration of treatment. Those from animals treated for 10 days showed a definite decrease in castration cells and a degranulation of the non-vacuolated basophiles. These changes were more pronounced in the 20- and 30-day series. In the latter only a few small castration cells and a very low percentage of normal basophiles were found. Many degranulated basophiles were present. This same effect of Antuitrin S injection upon the basophiles of the normal rat pituitary of both sexes, has been observed by the writer. A similar experiment has been reported recently by Severinghaus.²

The testes of the present series of animals have been examined carefully and compared with the testes removed prior to the initiation of treatment. No changes were observed in the epithelium of the seminiferous tubules. Although there appeared to be some effect of the treatment upon the interstitial cells it was neither constant nor distinct enough to be judged significant at this time. The use of more refined cytological procedures might be illuminating in this regard.

A series of 360-day castrates were subjected to the same Antuitrin S treatment. There was no apparent effect on the castration condition of the hypophyses or sex accessories. This result demonstrates that the testis plays an essential intermediary rôle in the changes produced in the pituitary and sex-accessories.

It is apparent from the effect on the sex-accessories that the treatment with gonadotropic hormone stimulated the production of testis hormone by some component of the cryptorchid testis, probably the interstitial cells. It cannot be definitely said that the correction of the castration changes in the pituitary resulted from the same hormone that affected the accessories since it is conceivable that the treatment stimulated the production, by the testis, of some other hormone. However, the evidence is such that it is highly unlikely that the testis secretes a second hormone peculiar to the male gonad. On the other hand, evidence is accumulating which indicates that oestrin is produced in the male either directly by the testis or by a conversion of the male hormone, and that it may be intimately concerned in male reproduction. Furthermore, it is not improbable that oestrin plays a part in the normal control of the anterior hypophysis in the male, a point that we are investigating.

² Severinghaus, A. E., *PROC. SOC. EXP. BIOL. AND MED.*, 1934, **31**, 593.