# Minnesota Branch

*University of Minnesota, December 2, 1925.*

## 2942

### Histological changes in the adrenal glands of guinea pigs subjected to scurvy and severe inanition.

BLANCHE LINDSAY and GRACE MEDES. (Introduced by J. F. McClendon).

[*From the Department of Physiology, University of Minnesota, Minneapolis, Minn.*]

McCarrison[1] described histological changes in the adrenal glands of guinea pigs fed a diet lacking in vitamin C. He reported hemorrhagic infiltration and degenerative changes in the cells of the cortex and medulla. The hemorrhagic areas are described as varying in size, situated in the cortex of the gland, and are circumscribed in character. The cells of the cortex are described as losing their tessellated appearance and manifesting a state of degeneration, which includes vacuolation and loss of the staining reaction of a portion of the nuclei.

Findlay[2] observed congestion in both cortex and medulla, but could not corroborate McCarrison's findings in regard to other cellular changes. Hemorrhage was observed only a few times.

Höjer[3] did not observe hemorrhage. The most pronounced change was simple atrophy, at first in connection with hyperemia.

Twelve guinea pigs were fed a scorbutic diet of alfalfa meal and wheat flour, equal parts by weight, oats *ad libitum* and powdered whole milk (Klim) corresponding to 50 cc. fresh milk

---

[1] McCarrison, R., *Studies in Deficiency Disease.* London, 1921.

[2] Findlay, G. M., The Blood and Blood-vessels in Guinea Pig Scurvy, *J. Path. and Bact.*, 1921, xxiv, 446.

[3] Höjer, J. Axel, Studies in Scurvy, *Acta Paediatrica (Supplementum)*, 1924, iii.

daily. Others were subjected to severe inanition by receiving limited amounts of the above diet with 2 cc. orange juice added daily.

Histological observations upon the adrenal glands of the different animals subjected to scurvy and starvation reveal similar changes in the adrenals. These glands present varying degrees of the changes reported by McCarrison.[1] In all cases where a change has taken place, evidence of hemorrhagic infiltration is more pronounced than degeneration of the cells. The infiltration assumes a circumscribed appearance around the medulla, occurring between the columns of cells of the cortex along the connective tissue septa.

## 2943

### Germinal epithelium of guinea pigs during early stages of scurvy.

GRACE MEDES. (Introduced by J. F. McClendon).

[*From the Department of Physiology, University of Minnesota, Minneapolis, Minn.*]

Guinea pigs were fed a scorbutic diet of alfalfa meal and wheat flour, equal parts by weight, oats *ad libitum,* and powdered whole milk (Klim) corresponding to 50 cc. fresh milk daily. The increase in weight for about 10 to 15 days was approximately at the same rate as control rats which received, in addition, 2 cc. of orange juice daily. They showed no symptoms of scurvy. At this time, however, histological changes characteristic of scurvy have already set in.

Observations made on the testes of guinea pigs, fed on a scorbutic diet and killed after ten days, show engorgement of the blood vessels with degeneration of seminal epithelium in some of the tubules. Cells in early stages of spermatogenesis were especially affected. Other tubules were normal and contained all stages of developing spermatozoa.

Guinea pigs kept for 30 to 40 days in a state of severe chronic scurvy show almost complete recovery of germinal epithelium after 17 days on an antiscorbutic diet.