vessels in this connective tissue layer there is, then, the means for transportation of the colloid into the general circulation. Since cells are not injured when subjected to centrifugal force of 200,000 times gravity and, yet, are sometimes separated by centrifugal force of 10,000 times gravity, this indicates that the cells are relatively loosely held together, and it seems probable that it would be much easier for the colloid to pass out between the cells than it would through the cells; in fact, nothing was observed to have been lost from the cells when they were subjected to centrifugal force of 200,000 times gravity and then made into histological preparations (3 μ thick) by Miss B. Sandin under the direction of Professor Erik Agduhr. These show (besides a displacement of chromatin in the nuclei) the displacement of cells of the follicular epithelium. Those of the rabbit show least displacement, those of the hog more, and those of a thyrotoxic human goiter most. Since Marine obtained symptoms of thyrotoxicosis by injection of thyrotropic hormone of anterior pituitary I tried the effect of thyrotropic hormone given me by Dr. Collip, on the Necturus thyroid in Ringer's fluid in the cell of the Harvey-Loomis centrifuge under a layer of oil to prevent evaporation. The cells of the thyroid treated with thyrotropic hormone were loosened more rapidly than those of a control slide without the hormone, but several days were required for complete loosening of the cells so that they would completely precipitate through the colloid in three minutes centrifuging at 10,000 times gravity. The colloid passed out of the connective tissue capsule after the precipitation of cells.

In Amphioxus the thyroid-homolog is a gland of external secretion. With its transformation into a gland of internal secretion the passage of secretion into the lumen still takes place. Some mechanism must be provided for the secretion to reach the general circulation. Since thyroglobulin has a molecular weight of nearly 700,000, being perhaps the largest molecule of a simple protein, diffusion through a semipermeable colloid membrane seems out of the question. This paper offers a suggestion. Conclusive observations could only be made on the living animal.

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EFFECTS OF ETHYLENE ON THE PLANT GROWTH HORMONE

IN view of the discussion of results of recent investigations of Hitchcock,[1] Van der Laan[2] and others in this journal,[3] it may be permitted to recall that the main conclusion expressed by Van der Laan reads as follows: "Alle diese Punkte weisen m.E. in die Richtung, dass die Bildung des Wuchsstoffes in der Zelle auf einen enzymatischen Prozess beruht."

If this consideration can be regarded as correct then we may bear in mind the conclusion expressed by Michener that all the effects of ethylene on growth are to be explained as indirect effects. This would be in agreement with earlier investigations to which we referred recently,[4] being also the foundation of practical results in the field of tobacco fermentation in the presence of minute quantities of certain gases, reported some months ago.[5]

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MIGRATION OF GRAY SQUIRRELS

IN SCIENCE for December 6, 1935, Ralph C. Jackson ventured an explanation of the migration of gray squirrels from New England into New York by postulating that red squirrels are responsible for the grays' emigration. Mr. Jackson says: "It is not generally known that a large percentage of gray squirrels are emasculated annually by the pugnacious reds. In years past the writer has shot and trapped alive a large number of gray squirrels and close observation showed 98 per cent. mutilation."

It seems logical to consider that (1) the testes of grays may be withdrawn into the abdominal cavity, except during the breeding season; (2) in immature squirrels the testes may not have migrated into the scrotum; (3) *Cuterebra emasculator* larvae may induce a condition that could be mistaken for castration. The actual emasculation of gray squirrels by reds remains a highly obscure and controversial point among zoologists and is in direct opposition to my experience with pet red and gray squirrels which were confined within the same cage.

According to Seton,[1] Merriam in "Mammals of the Adirondacks" (p. 226) and Jackson in "Wiscon. Mamm." (p. 87) consider the lack of food a causative factor in migrations of gray squirrels. It is interesting to note that this year there is a pronounced lack of winter food for gray squirrels in New England. Beech, acorn, and other nut crops were very slight this year. Game wardens and reliable woodsmen all over New England recently predicted a hard winter for gray squirrels. This information was imparted to the writer by questionnaires distributed while conducting a survey of winter food for wildlife. This factor

[1] Contributions from Boyce Thompson Institute, 7, 87; 1935.
[2] Thesis, Utrecht, 1934, p. 737.
[3] H. D. Michener, SCIENCE, 82: 551, 1935.
[4] F. F. Nord, SCIENCE, 79: 159, 1934.
[5] *Die Umschau*, 39: 202, 1935.
[1] E. T. Seton, "Lives of Game Animals," Vol. 4, Part 1.