

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 semi-permeable 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 Laan² and others in this journal,³ it may be permitted to recall that the

¹ Contributions from Boyce Thompson Institute, 7, 87; 1935.

² Thesis, Utrecht, 1934, p. 737.

³ H. D. Michener, *SCIENCE*, 82: 551, 1935.

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 emascuator* 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

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.

may aid in explaining the recent small squirrel migrations, one of which is described by Mr. Jackson, but it by no means satisfactorily explains the ancient myriad gray squirrel migrations. It is also interesting to note that some of these ancient migrations occurred in areas outside of the range of the red squirrel.²

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DISPOSAL OF PAPERS

IN clearing my shelves, I propose to make up about 25 incomplete sets of my occasional papers. These relate mainly to astronomical subjects, and for the most part are summaries of solar work. Should some of the readers of SCIENCE be interested to write me requesting them, I shall be glad to present them as long as they last.

C. G. ABBOT,
Secretary

SMITHSONIAN INSTITUTION

QUOTATIONS

GERMAN SCIENCE GOOSE-STEPS

FEELING ran high during the World War among the science professors. French and German physicists were not easily reconciled. More recently we saw Soviet Russia trying to distinguish between capitalistic and communistic science and fanatically attempting to drag the dialectic materialism of Marx into the laboratory. But that there should be a mystic "Nordic" principle from which alone flows all that is fine in natural science, that Hindus, Greeks and Arabs should have contributed nothing to exact knowledge, that Einstein and relativity should be anathema because of his Semitic origin—it took the Third Reich to strike that note.

The controversy which is now being waged in Hitler's personal organ, the *Voelkische Beobachter*, on the superior qualities of "Nordic" research should make scientists everywhere blush for their vaunted objectivity. An obscure Willi Menzel may be dismissed when he trumpets the pre-eminence of "Aryan" science. But what shall be said when such leading physicists as Professor Johannes Stark and Philipp Lenard outdo him in blind hatred? Germany has sunk low indeed when it can found a new journal, *Deutsche Mathematik*, for no other purpose than that of substituting a narrow nationalism for the internationalism that has always ruled mathematics, when it is seriously proposed to change the inscription on one of the buildings of Heidelberg University from "Dem Lebendigen Geist" (To the Living Spirit) to "Dem

Deutschen Geist," and when Nobel laureate Lenard can bring out the first volume of a great work on "Deutsche Physik" and dedicate it to Dr. Frick, Minister of the Interior, in this language:

German Physics? one asks. I might rather have said Aryan Physics or the Physics of the Nordic Species of Man, the Physics of those who have plumbed the depths of Reality, seekers after Truth, the Physics of the very founders of Science. But I shall be answered, "Science is and remains international." It is false. Science, like every other human product, is racial and conditioned by blood.

High as anti-Semitism may run in the universities, Max Planck, Werner Heisenberg and Max von Laue reply to Stark and Lenard. Are theirs perhaps the more authentic voices? Evidently courage is not quite dead in the universities. Yet not since the time of Galileo has science been in such danger. It is impossible for a German biologist to write honestly on certain medical, anthropological or genetic topics without running the risk of imprisonment. Physics, mathematics, chemistry stepping out to Nazi music—it is a sad spectacle. With only approved meetings held in Germany and a Science Congress Center organized to trumpet the Nazi racial ideology at international scientific gatherings, the generous days when Japanese and Germans, Frenchmen and Americans, Italians and Scandinavians could meet and discuss science without a thought of country, race or religion seem almost like a nostalgic memory.—*The New York Times*.

SCIENTIFIC BOOKS

HUMAN GEOGRAPHY

Europe. By SAMUEL VAN VALKENBURG and ELLSWORTH HUNTINGTON. 651 pp., 139 maps, 14 pages of graphs, 6 pages of tables, separate English and foreign bibliographies and index. John Wiley and Sons, New York, 1935. Price \$4.50.

TEACHERS of the geography of Europe have reason

² *Ibid*.

to feel favored, for within the past two years several really teachable texts in the field have been published. Not only has the number been greatly increased, but the quality of the new books has been consistently high; hence when one says that the book written by Van Valkenburg and Huntington, with its well-balanced physical, economic and cultural approach, is the