phasize the fact that the other writers studied mainly vaso-motor effects, whereas we were concerned solely with cardio-inhibitory manifestations.

Bowman and I were the first to prove, by the method of unipolar faradization, that the cardio-inhibitory center is located in the dorsal vagus nucleus or ala cinerea. In a fresh specimen of the medulla oblongata of the dog the dorsal vagus nucleus (ala cinerea) is easily recognizable as a translucent-looking ridge, forming the lateral margin of the calamus scriptorius. Its position and appearance, as shown in Fig 1 of our paper, are identical with those indicated by Ellenberger and Baum in Fig. 165 in their "Anatomie des Hundes."

In localization experiments, like those described in our paper, it is essential that the excitability of the medulla oblongata be carefully maintained and that the current applied by the stigmatic electrode be of threshold value. Such a current yields definite cardiac inhibition from the dorsal vagus nucleus but fails to yield it from points 1 mm or less mesially or laterally to the nucleus. Slightly stronger currents applied to the nucleus elicit complete inhibition (Cf. Figs. 1, 2, 3 and 4 of our paper).

The view expressed above that the dorsal vagus nucleus is the source of the cardio-inhibitory fibers is held by the following authorities: Kohnstamm, van Gehuchten and Molhant, Herrick, Ranson, Tigerstedt (the latter in "Physiol. d. Kreislaufes," vol. 2, p. 424, 1921).

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SELF-FERTILIZATION IN NICOTIANA

IN a recent paper,[1] Morgan describes the removal of the "block" to self-fertilization in *Ciona* by the removal of the membrane around the egg, and compares it to experiments on the self-fertilization of self-sterile plants. In this connection, he states that "in self-sterile plants it has not been possible to demonstrate whether the pollen could fertilize the egg cell if it reached it."

Leaving aside the consideration that Morgan's work with *Ciona* may not be strictly comparable to that with self-sterile plants, there are certain unpublished data obtained by Dr. E. Anderson and myself which show that there is no "block" to self-fertilization in *Nicotiana*. It was conceived that, since self-sterility (according to East) is due to the fact that pollen tubes after self-pollination show no acceleration in growth, and hence fail to reach the ovary before the decay of the flower, if unopened buds were self-pollinated, additional time would be gained, and the pollen tubes might reach the ovary before the flower decayed. In several instances, pollinations were simultaneously made on the unopened bud, the first, and the second flowers[2] on the same branch of the panicle of both *Nicotiana alata* plants and hybrids between *Nicotiana alata* and *Nicotiana Forgetiana*. Seeds were set in 68 per cent. of the pollinations of unopened buds, whereas in the first flowers seeds were set in only 16 per cent. of the cases and in the second flowers there were none set. This indicates that the gametes are not incompatible, and that self-fertilization can take place in *Nicotiana* provided the male gamete can reach the egg.

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THE INFLUENCE ON FISHERIES OF THE WAR

IN many places the war made it necessary to discontinue fishing during a considerable period of time, as most of the active fishermen were called to the colors.

This involuntary cessation of fishing was most noticeable where the struggle took place actually within fishery districts, and it is interesting to study how it influenced the abundance of fish in such places after the close of the war. There was a marked influence in southeast Russia in the mouths of the Volga River, where the most important Astrakan fisheries are located. I recently met a business man interested in the Astrakan fishery who had received news from his locality to the effect that the run of every kind of commercial fish in the Volga River was an unusually large one last spring and fall; individual catches were of fabulous size. Nevertheless, the entire amount of fish landed was only half what it had been before the war. This latter is mostly due to absence of organization and fishing outfit (nets).

The unusually strong run of fishes here is rightly attributable to the fact that during 1918 to 1920 a civil war was in progress within the Astrakan government and nationalization of the fishery industry was effected, which resulted in stopping regular fishing. This enabled various fishes like vobla (*Leuciscus rutilus*, var.), Caspian herring, pike-perches and sturgeons to enter the Volga River untroubled by fishermen and to spawn freely and abundantly. Most of these fishes reach maturity (and spawn) at their third or fourth year, and therefore they appeared in the river after this period of time in great quantities. Now, because of shortage of fishing tackle, they have doubtless again propagated in quantities (1923),

[1] Proceedings of the National Academy of Sciences, Vol. 9, No. 5, pp. 170–171.

[2] The flowers have been numbered from the apex to the base of the branch of the panicle, thus making the first flower the youngest.

so that rich catches are assured for several years more.

There is a Russian saying, "There is no evil without some gain in it," the truth of which has just been demonstrated by the effect of the war on fish.

I wish to mention in conclusion that an analogous case is cited in the history of Russian fisheries by Danilevsky, namely, that having investigated the fisheries of the Sea of Azof he was surprised at the large catches of fish during several years following the Crimean War (between Russia, Great Britain and France) in 1854–56.

The Sea of Azof lay within the field of naval war operations and, of course, there was no fishing there during two seasons, or in the mouths of two rivers, the Don and the Kuban, which flow into it. This was sufficient to guarantee good catches of fish during several years following the Crimean War in all this fishery district.

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SCIENTIFIC BOOKS

The Hemiptera, or Sucking Insects. By W. E. BRITTON, Ph.D., with the collaboration of Herbert Osborn (Parasitica), E. P. Van Duzee (Fulgoridae), D. M. DeLong (Cicadellidae), W. D. Funkhouser (Membracidae), L. A. Stearns (Cercopidae), W. T. Davis (Cicadidae), Edith M. Patch (Psyllidae and Aphididae), H. F. Wilson (Lachnini), A. C. Baker (Callipterini), A. C. Maxson (Pemphiginae), J. F. Abbott (Corixidae), H. H. Knight (Miridae), H. G. Barber (Lygaeidae), J. R. de la Torre-Bueno (Aquatic Heteroptera), H. M. Parshley (Terrestrial Heteroptera). 783 pages and XX plates. State Geological Natural History Survey, Hartford, 1923.

THE present volume is one of a series of guides to the insects of Connecticut prepared under the direction of Dr. W. E. Britton, state entomologist. It deals with an order of insects, the Hemiptera, which has been rather generally neglected in America. This is really the first serious attempt to treat in a systematic way the whole order from any given region.

Yet no order of insects is more directly connected with the welfare of the human race than the Hemiptera. The Parasitica all live upon mammals, sucking their blood, and include some of the most important pests of man and the domestic animals. The Homoptera all suck the juices from the leaves or twigs of plants, many species being markedly injurious. Thus the members of the family Cicadellidae feed upon the leaves and are known as "leaf-hoppers," those of the Membracidae feed upon the stems and twigs and are called "tree-hoppers," the Fulgoridae or "lantern flies" are usually on the stems or leaves of herbaceous plants or shrubs. The Cercopidae, known as "frog-hoppers" or "spittle insects," make frothy masses on the stems of grasses or the twigs of trees and shrubs. The members of the Cicadidae, or "harvest flies," are larger than those of the families just mentioned and apparently with all the species the immature forms are subterranean and feed upon the roots of trees: the adults suck sap from twigs and branches, and lay their eggs in them. The best known and most destructive species in this family is the "periodical cicada" or "seventeen-year locust." The Psyllids, or "jumping plant lice," occur on the stems and leaves of woody plants, and only a few species are considered as pests. The aphids, or "plant lice," are very abundant as regards species and individuals and are common to nearly every plant species. They are usually found on the under surface of the leaves or on the tender shoots, often doing great damage. The Aleyrodids, or "white flies," are few in number of species, and occur on the under side of leaves. Only two or three species in our range are considered of economic importance. The Coccidae, or "scale insects," occur on the bark and leaves of trees, the stems and leaves of herbaceous plants and shrubs, and certain species are found in the nests of ants: they are fairly abundant and include a number of important pests.

The Hemiptera, or Heteroptera, include a number of families like the Tingidae or "lace bugs," Minidae or "leaf bugs," Lygaeidae, Coreidae and Neididae, the members of which feed upon plant tissues, and certain species are well-known and important pests. Other families, like the Reduviidae, or "assassin bugs," Phymatidae, or "ambush bugs," Nabidae or "damsel bugs," Veliidae or "water striders," Belostomatidae or "giant water bugs," Corixidae, "water boatmen," Notonectidae, "back swimmers," and it is believed the Aradidae or "flat bugs" are predatory on insects and other small animals. The Cimicidae, or "bed bugs," attack warm blood animals. Other families, like the Pentatomidae, "stink bugs," contain certain species which are plant feeders, while others are predatory upon insects.

Though the insects of most of the families are terrestrial, the species of Veliidae, Nepidae, Saldidae, Nerthridae, Belostomatidae, Corixidae and Notonectidae are aquatic.

In general, the plant-feeding species, as well as those attacking the higher animals, are regarded as injurious, while the predatory species are called beneficial because they attack and destroy many individuals of noxious species. But they are perhaps just as apt to devour harmless or even beneficial species, should such be at hand. From certain species of Coccidae in the Orient is obtained the lac of commerce, and certain other species of the same family formerly supplied the brilliant red dye, cochineal. Thus the Hemiptera as a whole contains many species which are considered injurious, and some beneficial ones: few or none are parasitic on other insects, though many are predatory.

Some 20,000 species of Hemiptera have been described over the whole world; there are about 5,000 species in