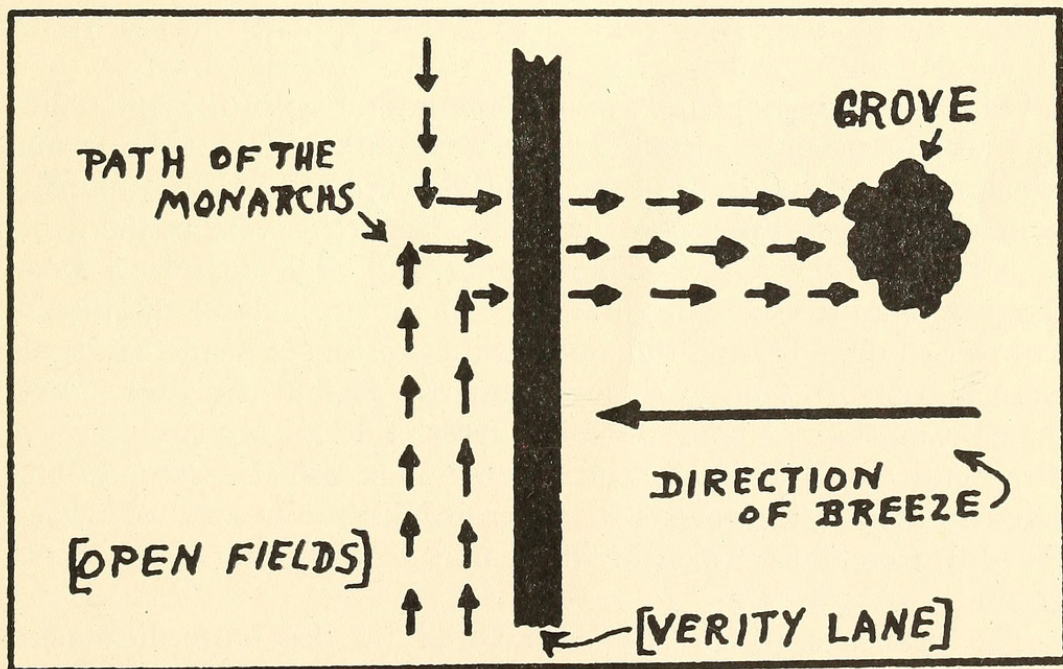


OBSERVATIONS ON THE MIGRATION OF THE MONARCH BUTTERFLY (*ANOSIA PLEXIPPUS*).

BY EDWIN WAY TEALE, Baldwin, N. Y.

During the early days of September, 1944, the movement of Monarch butterflies down the south shore of Long Island was greater than had been witnessed during any of a dozen previous years. Vast numbers of the insects congregated for the night in a small grove of oak and tupelo trees on the edge of a sea moor at the southern extremity of the town of Baldwin. Some of the branches contained as many as 100 butterflies to the foot.

On the evening of September 10, at 7:45 P.M., I was returning home with my wife after visiting the grove. We were walking north on a road known as Verity Lane about an eighth of a mile east of the trees on which the butterflies were congregating. A slight breeze was blowing from the west. We observed a Monarch flying south, parallel to Verity Lane and over open fields to the east. When it reached a position in line with the oak-and-tupelo grove, it made an almost right-angle turn and headed in that direction. A few minutes later, another Monarch flying further out over the fields came opposite the grove. It, too, made a sudden right-angle turn and flew straight for the spot where the butterflies were congregating. A little later, a third straggler appeared, flying northward over the fields. It, like the others, reached a point



opposite the grove and then turned suddenly and headed in that direction.

These observations suggest the possibility that the perfume from the scent-scales on the hind wings of the massed male Monarchs, carried by the breeze, may guide late-comers to the spot where the butterflies are congregating at nightfall. It is known that the honeybee (*Apis mellifera*) uses a similar method of attracting stragglers to the cluster at the time of swarming. The bees in the cluster open glands and, by fanning their wings, send scent-trails through the air which are followed by the bees that are still on the wing.

On the long flight south, in the autumn, the males and females are about equally divided among the Monarchs. But in the spring, when the return journey is made, females predominate. In fact, at one time it was believed that no males made the northward trip. While this has been proved an error, it is well known that the more scattered, individual, and less obvious northward migration is largely the work of the female butterflies. When the males are more numerous—during the southward flight—the insects tend to congregate and to fly in flocks or in straggling masses. When the males are extremely rare, during the flight north, such flocks are unknown. While many factors undoubtedly play their part, it seems entirely possible that the scent-pockets of the males may play an important part in holding together the great flocks of the Monarchs during their southward movement. The perfume of the male insects, previously thought of primarily as an aid during the mating season, may have another important function in the life of the Monarch.

On the 14th of September, while the migration of the butterflies was still in progress, Long Island was subjected to a hurricane which uprooted hundreds of trees in Baldwin. The eighty-mile-an-hour wind struck the grove where the Monarchs were in the habit of settling for the night. The evening before, I had seen a score clinging to an overhanging branch. The main body of the insects had passed on. During the night of the storm, six of the oak trees were uprooted. One was more than two feet in diameter. Yet, the next morning, among the fallen trees, a dozen Monarch butterflies—entirely unharmed and even unblemished—were sailing serenely about the grove. In all probability, they had weathered the storm on the lee side of the trunks of trees and close to the ground.

The branches which seemed favored by the butterflies as a night's resting place were between eighteen and twenty-five feet

above the ground. Neither sounds nor movements on the ground below disturbed them in the least. But vibrations produced by the slightest tap on the branch would send the massed insects exploding in a fluttering cloud into the air.

"MEMBER'S CORNER" PERSONALS.

OTTO BUCHHOLZ, of Roselle Park, N. J., during the past summer spent three months on a collecting trip in and around the Great Dismal Swamp, on the borderline between Virginia and North Carolina. He made his headquarters near Holland, Va., eight miles from the edge of the swamp. Besides collecting approximately 2,000 specimens, he gathered data on 82 species of Virginia butterflies, including one or two new records.

ROWLAND R. McELVARE, of Port Washington, Long Island, visited a number of entomologists on recent trips to Ithaca and Boston, where he stopped at the Comstock Museum, at Cornell, and at the Museum of Comparative Zoology, at Harvard. Dr. William T. M. Forbes' collection of the *Heliothis*, at Cornell, was examined with special interest. Dr. Henry Dietrich, Curator of the Comstock Museum, sent his greetings to other members of the Society.

DR. JOSEPH BEQUAERT, of the School of Tropical Medicine, Harvard Medical School, Boston, Mass., has returned to the United States after carrying on work for the Government in Africa.

WILLIAM T. DAVIS, of Staten Island, N. Y.—his legion of admirers and friends will be sorry to learn—has been confined to the Staten Island General Hospital, Tompkinsville, since late in July. He is recuperating from an operation. There, many of his friends visited him on his 82nd birthday, on October 12, 1944.

EDWIN WAY TEALE, of Baldwin, Long Island, who traveled 7,000 miles last year lecturing with Kodachrome moving pictures of insect life, is being booked for another tour this spring by the Clark H. Getts agency of New York City. His latest book, *Dune Boy*, is being brought out in England by a London publisher and is being translated for publication in Switzerland. A condensation appeared in the South American edition of The Reader's Digest as "*Chico de las Dunas*." A previous book, *Near Horizons* is being transcribed into Braille by the N. Y. Public Library.

DR. A. L. MELANDER, who retired from the chairmanship of the Department of Biology of the College of the City of New York, last year, has established a home in Riverside, California. He is continuing his hobby of photographing insects in full color.



Teale, Edwin Way. 1944. "Observations on the migration of the monarch butterfly (*Anosia plexippus*).*" Bulletin of the Brooklyn Entomological Society* 39, 161–163.

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