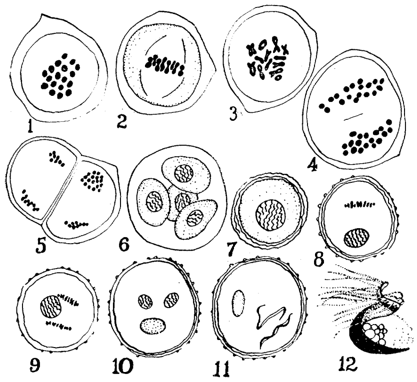

Figs. 1–12. Ragweed pollen.

every bivalent chromosome (Fig. 3). At the end of the first anaphase, the partition wall begins to appear between the two newly formed chromosome groups (Fig. 4); at the end of the second division, it is clearly apparent (Fig. 5).

When the tetrad is formed, each cell changes into a pollen grain with a thick cell wall (Figs. 6 and 7). After the first division of the pollen nucleus, a vegetative nucleus and a germ nucleus are produced, and the germ nucleus once more divides into two male nuclei (Figs. 8–10).

Each of the two male nuclei gradually change into the long, banded, sharp-pointed structures. One side of the banded nucleus is stained especially deeply. the band-shaped nuclei form spirals and resemble the spindle-shaped spermatozoids of a fern or a moss (Fig. 11). I have studied the cytomorphological features of many species of ferns (*1*), and a spermatozoid of *Alsophila martensiana* (Fig. 12) shows some resemblance to the male nucleus of ragweed (*2*). The male nucleus of Angiospermae corresponds to the spermatozoid of a fern or a moss, and it is interesting from the viewpoint of phylogeny that the male nuclei of an *Ambrosia* should show a spiral form.

In *Fritillaria* (*3*), in *Lilium* (*4*), and in *Monotropa* (*5*), the male nuclei become spiral-shaped after they enter the embryo sac, but this is the first instance in which the male nucleus of a higher plant has been found to exhibit a spiral form in the pollen.

AKIRA YUASA*
Biological Research Laboratory, Southern Illinois University, Carbondale

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* Fulbright grantee (1955) from the University of Tokyo.

3 October 1955

Genus Haemagogus in the United States

We have been engaged during the past 6 years in the study of the tropical American mosquitoes of the genus *Haemagogus* (Diptera, Culicidae) that are associated with the wave of sylvan yellow fever that passed through Panama during the period 1948–51 and in 1954 reached the north coast of Honduras.

In the course of field work in Middle America, we came to realize that this genus, which had been studied primarily in the tropical rain forests of South America, includes species characteristic of very different ecological situations. In southern Mexico, near Tuxtla Gutierrez, we found two species of *Haemagogus* at elevations in excess of 4000 feet, associated with a semiarid scrub-type of vegetation. This led us to believe that there were members of the genus that might inhabit similar situations at lower elevations to the north of the Tropic of Cancer. We have been interested in determining the northern limits of the distribution of these mosquitoes because of their implication in the transmission of sylvan yellow fever.

After reviewing available information on the physiography, climatology, and vegetation of the Mexican gulf versant, we selected several areas in the Rio Grande basin for survey in late August and early September of last year, when rainfall and temperature conditions would be most favorable for the breeding of *Haemagogus* (*1*). One of these areas was the delta region of the Rio Grande in the vicinity of Brownsville, Tex. This area is largely under intensive cultivation, but we were able to find occasional patches of thorny scrub vegetation along relatively moist depressions that are locally known as "resacas." Larvae and pupae of *Haemagogus equinus* were collected from water in three tree holes in a patch of thorn scrub off Texas State Highway 48 near the intersection with Farm Road 1792, 5 miles northeast of Brownsville (4 and 6 Sept. 1955); and from a tree-hole 15.7 miles east of Brownsville on Boca Chica Boulevard (6 Sept. 1955). By 8 Sept., adult males and females had already emerged. This material will be deposited in the United States National Museum and the collection of the Gorgas Memorial Laboratory. Because of the pressure of other field work scheduled in Mexico, no attempt was made to seek *Haemagogus* futher north in Texas.

Haemagogus equinus, which occurs at least as far south as Colombia, is a proved vector of yellow fever in the laboratory, but virus has not been recovered with certainty from it in nature. It was, however, the only species of *Haemagogus* found by us in immediate association with the epizootic of yellow fever on the northern coast of Honduras in 1954 (*2*).

HAROLD TRAPIDO
PEDRO GALINDO
Gorgas Memorial Laboratory, Panama, Republic of Panama

References and Notes

1. This investigation was supported by the Research and Development Division, Office of the Surgeon General, Department of the Army, under contract No. DA-49-007-MD-655.
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27 September 1955

Loss of Sebaceous Glands in Skin of Thiamine-Deficient Mice

To study the effects of thiamine deficiency in mouse skin with resting or growing hair follicles, approximately 60 young adult C57 black mice of both sexes were used. The mice were kept in individual wire metabolism cages and offered tap water ad libitum.

Two kinds of thiamine-deficient diets were used—diet 227 (Table 1), obtained from Paul Fenton of Brown University (*1*) and a diet purchased from General Biochemicals, Inc. (Table 2). Pair-fed animals—that is, animals fed the normal diet in amounts equal to those consumed by their respective paired mates that were fed the thiamine-deficient diet, served as controls.

Biopsy specimens were removed on approximately the 7th, 14th, and 21st days of the deficiency regimen. The skin was shaved, and approximately 1 cm² was removed, spread on a piece of cardboard, cut in half, and fixed in 10-percent formol calcium. One half was prepared for histological study and stained in an

Table 1. Components of diet 227. In the control diet, 10 mg of thiamine was added to each 1000 g of diet 227.

Component	Amount
Casein (vitamin-free)	300 g
Dextrin	500 g
Salts (Hubbel *et al.*)	50 g
Corn oil	50 g
Vitamin supplement per 1000 g of diet	
Pyridoxine	10.0 mg
Riboflavin	20.0 mg
Nicotinic acid	50.0 mg
Biotin	0.2 mg
Folic acid	5.0 mg
Pantothenic acid	100.0 mg
Vitamin A	10,000 U.S.P. units
Vitamin D	1,000 U.S.P. units
Vitamin E	50.0 mg
Vitamin K	10.0 mg
Choline	1.50 gm