GENERAL NOTES

AN OVIPOSITION "MISTAKE" BY PAPILIO GLAUCUS (PAPILIONIDAE)

Oviposition "mistakes," in which female butterflies lay eggs on plants toxic to their larvae, are well-documented and not infrequent occurrences (Hefley 1937, J. Anim. Ecol. 6: 138–144; Straatman 1962, J. Lepid. Soc. 16: 99–103; Sevastopulo 1964, ibid. 18: 104; Bowden 1971, ibid. 25: 6–12; Chew 1977, Evolution 31: 568–579; Young 1979, J. Lepid. Soc. 33: 56–57). Such mistakes usually occur after some sort of ecological disturbance, particularly when plants that share a chemical or taxonomic similarity with native hosts are introduced into an area where the butterflies are common. In the present instance, however, I discovered an oviposition mistake involving native insects and native plants.

On 13 June 1979, I found two eggs of *Papilio glaucus* L. (Papilionidae) on leaves of *Angelica atropurpurea* (Umbelliferae), growing in a swampy area adjacent to a plowed field. Though rosaceous shrubs were present within 10 ft of the angelica, the foliage was not intermingled. After the eggs hatched on 18 June, I placed one larva on leaves of *Prunus serotina* (Rosaceae), a well-known and ubiquitous host of *Papilio glaucus*, in order to confirm the identification of the caterpillars as *P. glaucus*. The caterpillar began to feed immediately on *Prunus serotina* and developed normally. The remaining larva was confined on leaves of *Angelica atropurpurea* and allowed to feed *ad libitum*; leaves were replaced daily. Although the larva fed daily, as evidenced by leaf damage and production of fecal pellets, it failed to develop beyond the second instar and eventually died on 9 July 1979. By constrast, the larva that had been placed on cherry after hatching had reached the fourth instar by that date.

The fact that the ovipositing female Papilio glaucus failed to reject Angelica atropurpurea as an unsuitable host is curious in that, in growth form and leaf shape, A. atropurpurea, a herbaceous perennial with 2- or 3- ternately compound leaves, bears little or no resemblance to any of the local P. glaucus hosts, including Prunus, Acer, Betula, Crataegus, Fraxinus, Lindera, Liriodendron, Magnolia, Malus, Populus, Ptelea, Salix, Sassafras, Syringa and Tilia (Scriber 1972, J. Lepid. Soc. 26: 235-236; Scriber, Lederhouse & Contardo 1975, ibid. 29: 10-14; Tietz 1972, An Index to the Described Life Histories, Early Stages and Hosts of the Macrolepidoptera of the Continental United States and Canada, A. C. Allen, Sarasota, Florida). A. atropurpurea, however, does share several chemical similarities with P. glaucus hosts. Like plants in the Magnoliaccac, Olcaceae, Rosaceae, Rutaceae and Tiliaceae, A. atropurpurea contains hydroxycoumarin compounds (Hegnauer, 1964–1973, Chemotaxonomie der Pflanzen, Vols. 3-6, Birkhauser Verlag, Basel, Switzerland). Although the remaining host families of Papilio glaucus are not reported to contain hydroxycoumarins per se, they almost all contain *p*-coumaric acid, the universal biosynthetic precursor of hydroxycoumarins. Because Papilio polyxenes Fab., a species not closely-related taxonomically to P. glaucus but sympatric with it over much of its range, feeds almost exclusively on the coumarin-rich Umbelliferae, including Angelica atropurpurea (Tietz 1972, op. cit.), it would be interesting to investigate the significance of coumarin compounds and biosynthetically related compounds as oviposition and feeding stimulants in the Papilionidae and to determine, if possible, whether the use of such chemical signals represents convergence or common ancestry within the genus Papilio.

I thank M. Carter for assistance in collecting foodplant and R. Lederhouse and P. P. Feeny for discussion. Caterpillars are deposited in Cornell University Collection Lot 1023, Sublot 41a. This work was supported in part by N.S.F. Research Grant DEB 76-20114 A01 to P. P. Feeny.

M. BERENBAUM, Department of Entomology, 110 Insectary, Cornell University, Ithaca, New York 14853 (Present address: Department of Entomology, University of Illinois, Urbana, Illinois 61801)