

Journal of the Lepidopterists' Society
62(1), 2008, 58–59

CHRYSLIS: MARIA SIBYLLA MERIAN AND THE SECRETS OF METAMORPHOSIS. By Kim Todd. 330 pages, 8 black-and-white and 8 color plates; 8 x 5.25 in.; ISBN 978-0-15-603299-5 (paperback), ISBN 978-0-15-101108-7 (hardcover); US\$15 (paper). A Harvest Book of Harcourt, Inc., Orlando, New York and London. Publication date: 2007.

As a penurious graduate student 40 years ago, I spent a significant amount of my savings on a full-size facsimile edition of Maria Sibylla Merian's "Insects of Surinam." Many years later my wife surprised me with an authentic Merian butterfly plate, which hangs proudly in our living room. It shows the familiar Gulf Fritillary, *Agraulis vanillae*. That plate lies at the very heart of a mystery about Madame Merian. I read this book hoping it would solve that mystery. But it didn't.

"That curious Person Madam Maria Sibylla Merian," as her contemporary and patron James Petiver famously styled her, was just that. Reared in Frankfurt in a family and social circle of publishers, printers, artists, craftsmen and engravers, she found her vocation in collecting, rearing and painting caterpillars and what issued from them: butterflies and moths, but also parasitoids. "She was," as a tropical biologist quipped to me recently, "the Dan Janzen of her day." Married at 16, mother of two daughters, she eventually tired of her domestic arrangements and left her husband in order to join a religious commune. He tracked her to the commune's door and camped outside, but she refused to see him and eventually he went away and secured a divorce. But she tired of the pietistic discipline and moved to the bustling capital of Amsterdam, where, as a 52-year-old divorcee, she conceived the notion of traveling to the Dutch colony of Surinam on the north coast of South America to rear and paint tropical insects. And that is exactly what she did, setting sail in June 1699, accompanied by her 21-year-old daughter Dorothy. They spent two years in Surinam. The resulting artworks made her reputation.

In writing a biography of this strong-willed, independent, fearless woman, Kim Todd has done her scholarly homework. Because so little tangible evidence of Merian's life exists, she artfully fills in the blank spaces with vignettes of life in the intellectual circles of Germany and Holland, in the commune founded by Jean de Labadie, and in the sultry backwaters of the Guianas where slavery was an omnipresent evil. She attempts to make a case that Merian was in fact a major innovator insofar as she attempted to pursue the life histories of Lepidopterans as integrated wholes and to

represent them artistically in an "ecological" way, on their host plants and in the company of their natural enemies. She suggests that Merian helped significantly in banishing the outlandish notions of spontaneous generation and transformism that had colored zoology right into the seventeenth century. In her Epilogue, she attempts to tie her fascination with metamorphosis to contemporary research in developmental genetics, insect hormones, and phenotypic plasticity. I think it is fair to say that while she may have contributed some to the emergence of such science, her contemporary Swammerdam, for one, contributed quite a bit more. Merian's achievement is extraordinary enough without having to stretch to tie her to the latest stuff in "evo-devo."

Which brings us to the mystery.

There is no doubt that Maria Merian reared many Lepidopterans to the adult, both in Europe and in Surinam. Her extant notes and her illustrations make that clear. But from the very beginning, the composition of her paintings shows more "art" than "science." Her Book of Flowers, published in three volumes between 1675 and 1680, portrays European garden and wild flowers, often (usually!) accompanied by meticulously-rendered insects, including Lepidoptera—some of the most subtle representations I know of that fauna. But the insects bear no "ecological" relationship to the flowers; they are clearly there only for artistic reasons. Thus the Peony plate has a lovely female *Lycaena phlaeas* which, however, would have nothing to do with a Peony since it is neither a nectar source nor a larval host. Likewise the Magpie Moth (*Abraxas grossulariata*) shown with a garden hyacinth...and so on. The seemingly random placement of insects with plants becomes a real problem, however, when it comes to her Surinam work. Here, because almost everything illustrated was new to science, the assumption that she was in fact giving an integrated "ecological" view of the life history was not only natural, and seemingly encouraged by her; it was frequently unjustified. Todd attempts to excuse the problem in terms of material lost in shipment and so forth (p. 206). She also acts as if it is a minor problem. But it isn't, and that takes us back to the Gulf Fritillary plate in my living room.

Have you ever wondered why the Gulf Fritillary is named *vanillae* when it has nothing to do with vanilla (which comes from an orchid)? The name is Linnean, from the *Systema Naturae*, 10th edition (1758), p. 482. If you go to p. 482 (which you can do on-line, since the entire work has been digitized and posted), you find

Linnaeus gives the reference “Merian Surin. 25 t.25.—Habitat in Epidendro vanilla. Americes.” And there is the plate, with upper and under surfaces of the butterfly, somebody else’s caterpillar, and a cast skin of what appears to be a Papilionid pupa, all on a vanilla orchid, just as the text says. The story is perfectly clear. Linnaeus described and named the animal from Merian’s plate—there never was a type-specimen—and he inferred that it lived on vanilla. (Johannes Fabricius knew that the bug eats *Passiflora* and tried to rename it *passiflorae*. But that’s another story.

Another familiar tropical American butterfly, the White Peacock (*Anartia jatrophae*) presents an identical tale. Todd actually reproduces the guilty plate, representing the butterfly together with Cassava, *Manihot esculenta*, but then called *Jatropha manihot*. Once again the describer (Linnaeus’ pupil Johansson, in his thesis which forms part of the compilation *Amoenitates Academicae*) cites “Merian Surin. 4 t.4—Habitat in Jatropha. Americes (p.408).” Again no type specimen, only an illustration and an unwarranted assumption. *Anartia jatrophae* does not eat Cassava. It eats a bunch of other things, none of them in the Euphorbiaceae like Cassava.

So if Merian was so dedicated to working out the

secrets of metamorphosis, why are so many of her plates deceptive? (The one reproduced on the cover has a *Morpho*, a non-morphid caterpillar, another Papilionid pupal case, and a flowering and fruiting branch of pomegranate—not a Surinam native.) Clearly, Kim Todd cannot tell us.

Postscript: In 1999 Prestel-Verlag (Munich) published a lovely facsimile edition of (selected pages from) Merian’s Book of Flowers. It contains an outstanding short biography of Merian by Thomas Buerger (1999), which is not cited by Todd. If you would like the solid story in concise form, shorn of its background color but with an art historian’s slant, you might prefer it to *Chrysalis*. But Buerger doesn’t solve the mystery either.

LITERATURE CITED

BUERGER, T. 1999. Stations of an artist in the Baroque Age: Frankfurt am Main, Nuremberg, Amsterdam, Surinam. Pp. 82–88. in; M.S. Merian. *New Book of Flowers*. Prestel-Verlag, Munich.

ARTHUR M. SHAPIRO, *Center for Population Biology, University of California, Davis, CA 95616. e-mail: amshapiro@ucdavis.edu.*