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BOOK REVIEW

BORNE ON THE WIND: The Extraordinary World of Insects in Flight. Stephen Dalton, 1975, Reader's Digest Press, E. P. Dutton & Co., Inc. New York. 160 p. illus. \$18.95 (75-6517). It is rare to find a book that is both scientifically correct and a visual masterpiece all in the same dust jacket. I am no doubt biased as a reviewer for according to the preface my background almost exactly parallels that of the author. I took my first photographs of birds as a teenager. I did not use a Brownie as did the author, but instead a Jiffy Kodak, and my love of flight did not develop from the RAF but rather the USAF—minor dissimilarities! Like Mr. Dalton, I have collected insects since boyhood. The author correctly points out that insects were the first organisms to fly and that man's flying techniques are but a second rate imitation of the flight of insects. Mr. Dalton accepts the theory that insect wings probably developed as extensions of the thoracic wall into stabilizers for jumping, and later enlarged into gliding airfoils. Considering the present state of evolutionary knowledge most entomologists would probably agree that the thoracic lobe theory is still the best guess about the evolution of insect flight, although the theory will no doubt be modified with time. The development of efficient flight in the insect has been one of the main reasons for the insects' evolutionary success. The author points out that insect wings have no muscles and it is the complex structure of the thorax and its contained muscles that impart power to the insect airfoil. The thoracic power mechanism allows the insect to perform maneuvers that cannot be imitated by any other flying machine, living or man made. The author's simplified explanation of insect aerodynamics is lucid and much the same as the explanation by this reviewer in his book "Insects and How they Function." The real "guts" of the book is in the refined techniques that Mr. Dalton used to take the photographic masterpieces that cover many different orders of insects. It is useless in a review to attempt to describe the "in flight" color photographs for they alone are the reason for the book's existence. It is a "coffee table" book that no lover of insects will want to leave out of his library. I have only one small criticism of this beautiful work and that is not of the author's doing, but rather the gentleman that wrote the foreword. Dr. Howard Evans states in the foreword that these photographs represent the first insect photographs in full free flight. I believe, if my memory serves me right, that a certain P. S. Callahan wrote a paper on moth flight behavior in 1965 and illustrated the paper with photographs of moths in free flight (*Ann. Entomol. Soc. Amer.* Vol. 58:159-169) (Fig. 1). One of his color slides appears in the LIFE science series "Animal Behavior," and other photographs of different orders have been published elsewhere and in his own books.

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