

Thompson R

XVI INTERNATIONAL CONGRESS OF ENTOMOLOGY

ABSTRACTS



KYOTO, JAPAN 3-9 AUGUST, 1980

IS-1,7 Flower flies and Zoogeography (THOMPSON, F. C.)

Distribution patterns have intrigued biologists almost as long as those of diversity. Distribution patterns were used by Darwin to support his theory of evolution, but, with Wallace and subsequent workers, these patterns themselves were overlooked as attention was shifted to the study of dispersal. The geography of the world was accepted as stable, and dispersal was invoked to explain disjunctions. The advent of plate tectonics and phylogenetics (cladistics) has renewed interest in distribution patterns. Distributions of individual monophyletic taxa can be accumulated or summed to form general patterns. The coincidence of these patterns with those from other disciplines such as geology may require explanations other than dispersal over stable continental configurations. Distribution patterns of flower flies are used to illustrate some of the new concepts in zoogeography and to suggest a scenario of life for the last 180 million years.

IS-2,8

FOSSILS AND THE ORIGIN OF INSECT FLIGHT AND METAMORPHOSIS. Kukalova-Peck, J.
(Department of Geology, Carleton University, Ottawa, Ontario K1S 5B6, Canada)

In contrast to modern pterygote nymphs, Paleozoic nymphs primitively had articulated and freely movable appendages on the thorax (serially homologous with smaller wing-like abdominal appendages). This is reflected in the early instars of some modern nymphs; their wing buds evaginate from the pleural region and only later become immobilized and secondarily fused with the terga. Thus, wings are modified pleural appendages. Primitive Paleozoic nymphs had a confluent development, without a metamorphic instar. This occurred later, and restored the movability of the wings. Metamorphosis is polyphyletic and developed in parallel in all major insect lineages. Paleoptera and Neoptera are sister groups which diverged mainly in wing-articulation mechanism, but before flight was fully developed. Wing appendages in (unknown) ancestral pterygotes were probably situated laterally and were incapable of being flexed backwards over the abdomen. The major groups of pterygote orders were also formed very early, probably simultaneously with the flight adaptations of the proto-wings.

IS-2,9

Origin and main-lines of evolution of insect wings as flight organs.
Bocharova-Messner, O. M.