

BOOK REVIEW

Spinnenfauna Gestern und Heute: Fossile Spinnen in Bernstein und ihre Heute Lebenden Verwandten.—Jörg Wunderlich. 1986. Erich Bauer Verlag of Quelle & Meyer, Wiesbaden, West Germany. 283 pp. No price supplied.

This is the first in a projected series of three volumes devoted to amber spider fossils and their relationships. The second and third volumes will provide detailed studies of fossils in Dominican and Baltic amber, respectively. This first volume is of special interest to neontologists, for it includes explications of Wunderlich's views on the placement of both fossil and extant taxa, particularly those belonging to the superfamily Araneoidea (orb-weavers and their close relatives), as well as an overview of the amber fauna. Many illustrations (even color photographs), and some descriptions, of Recent taxa are included. Although written in German, Wunderlich provides an English abstract for each chapter and helpful lists of nomenclatorial changes. Those lists have some unfortunate omissions, however. For example, Wunderlich places the now widely recognized families Anapidae, Symphytognathidae, and Mysmenidae in a single family (Anapidae); although the sinking of Symphytognathidae is noted in his lists, the demotion of Mysmenidae is not. Similarly, Wunderlich evidently considers at least part of the Amaurobiidae (the subfamily Amaurobiinae) to belong to the Agelenidae, but only his synonymy of the agelenid subfamily Coelotinae with the Amaurobiinae is included in the lists, and no justification of the concomitant sinking of Amaurobiidae, or commentary on the placement of the other amaurobiid subfamilies, is provided.

The first chapter includes a summary table of Recent families and subfamilies represented in Baltic or Dominican amber (or both); by Wunderlich's reckoning, 33 out of 46 families currently found in Europe are represented by Baltic fossils (plus four others not found in Europe today, including the Archaeidae, first described from Baltic amber but subsequently found alive in Madagascar, South Africa, and eastern Australia). The same number of Recent families (37) is reported from Dominican amber. Additional families, however, contain only amber specimens; some of these taxa (established mostly by Petrunkevitch) are of dubious validity, and reinterpretations and new synonymies are provided for several of them. Wunderlich's earlier argument for placing the Baltic Spatiatoridae in the Palpimanoidea is amplified with a useful data matrix; of special interest is his illustration of a cheliceral file-palpal femoral tubercle stridulatory system in these animals corresponding to the type now known in such neocribellates as the Austrochilidae, Gradungulidae, and Mecysmaucheniidae. Other fossil taxa are newly synonymized with extant genera (*Deinopsis*, *Hyptiotes*, and *Zygiella*) and families (Heteropodidae, Zodariidae, Dictynidae, Agelenidae, Araneidae, and Oecobiidae). Wunderlich argues that the Clubionidae and Myrmeciidae [=Corinnidae, including the Mymeciinae (=Castianeirinae), Corinninae, and Trachelinae] can be separated by the presence of a rippled cuticular surface in true clubionids; although a few scanning electron micrographs are provided, many more genera must be examined before this distinction, and its polarity, can be assessed.

In Chapter 2, Wunderlich confirms that the Dominican and Baltic amber spiders belong to largely tropical and sub-tropical groups, respectively. The relatively young

Dominican fauna, and the even younger specimens in Dominican copal, resemble current Neotropical assemblages (with only 15% of the genera not occurring in the same place today); in contrast, the Baltic fauna is closer to the present-day Oriental, Ethiopian, and Australian ones (with about three-fourths of the genera extinct in Europe today). Remarkably, a mere eight (out of several hundred) species account for over half of the adult male specimens known in amber.

Chapter 3 is devoted to some Baltic Nesticidae; two species of the fossil genus *Eopopino* are argued to contain two (chrono?) subspecies each, and the genus is suggested as an ancestor of *Carpathonesticus* (raising the spectre of paraphyly). In chapter 4, Wunderlich indicates that "It has not been possible to find a fossil species of spiders in Baltic or Dominican amber which is conspecific with a recent one." Considering the very different findings obtained for some other arthropod groups (such as the Collembola), this result is surprising, particularly for the Dominican taxa. A strong case is made for including Recent European species erroneously assigned to *Tetrilus* and *Tuberta* in the Baltic genus *Mastigusa* instead; the bizarre male pedipalps of these forms are readily observable in the fossils.

Chapter 5 contains the heart of the book—a discussion of araneoid interrelationships that is particularly timely because of the progress recently made in this area by Coddington (1986, which Wunderlich had access to in manuscript form). Eight cladograms are provided, showing various possible arrangements of families and subfamilies, with putative synapomorphies noted. Because no data matrices are supplied, one cannot easily assess the relative parsimony of these alternative arrangements. Wunderlich amplifies Coddington's comments on araneoid-palpi-manoid relationships with a cladogram showing, on one branch, the cribellate orb-weavers (Uloboridae and Deinopidae) and araneoids as sister groups, with Nico-damidae as their outgroup (in a union unsupported by any synapomorphy), and on the other, the Palpimanoidea (in a restricted sense, not that of Forster and Platnick, 1984) and Archaeoidea (including the Micropholcommatidae and more apomorphic families) as sister groups, with the Eresidae as their outgroup (a novel but plausible suggestion). This whole complex is distinguished from the many other araneomorph families only by the loss of all but one metatarsal trichobothrium.

There are several provocative suggestions at the family level as well. Wunderlich continues to include the Hadrotarsidae in the Theridiidae (but without responding to the counter-arguments of Baert, 1984). He elevates the Malkarinae to family status and pairs them (accurately, in my view) with the Mimetidae (indeed, when the entire range of related but still undescribed Australasian taxa is worked up, *Malkara* may prove to be only a highly autapomorphic mimetid). Wunderlich favors retaining mimetids in the Araneoidea, but the only relevant character shown on the two cladograms so constructed is the presence of a basal paracymbium on the male palp. Hence his view primarily raises questions about the homology of "paracymbia" in groups ranging from the Liphistiidae and Hypochilidae on up. Wunderlich offers the first suggestion of a detailed placement for the Cyatholipidae (as the sister group of Nesticidae plus Theridiidae, supported by having the cheliceral teeth slender).

In the more detailed cladograms, Wunderlich differs with Coddington's view of the interrelationships of the three families of tiny and usually lungless araneoids, grouping mysmenids with symphytognathids rather than anapids, and adding (in addition to his unproductive lumping of these families) a novel segregation of the

new taxon Synaphrinae (*Synaphris*, *Cepheia*, and *Iardinis*, with an enlarged pro-marginal cheliceral tooth) from the remaining mysmenids (with a femoral organ, a spur on the male metatarsus I, and denticles between the cheliceral tooth rows). A scheme of interrelationships of ((tetragrathines and leucaugines), metines)), (nephelines, argiopines, (gasteracanthines and araneines))) is rendered somewhat ambiguous by the lack of detailed lists of the genera Wunderlich would place in each of the first three groups (*Zygiella* is also considered a true araneine rather than a member of one of those first three groups). A similar proposal for linyphiid subgroups includes newly named subfamilies at the plesiomorphic end; unfortunately, both Millidge's (1986) new work on linyphiid tracheal systems and the recent establishment of the possibly related Sternodidae (Moran, 1986) were published too late to be included in Wunderlich's analysis.

All in all, Wunderlich has served up a tasty and substantial meal for spider workers to digest; one can only hope that the remaining books in the series will contain an equally palatable stew of paleontological and neontological novelties!—*Norman I. Platnick, Department of Entomology, American Museum of Natural History, New York, New York 10024.*

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