Echinoderms And Crinoids

1. Solving The Mystery Of Crinoid Ancestry, By Thomas E. Guensburg
Occasionally a new fossil emerges that challenges our understanding of the origin and early phylogeny of a major taxon. The single specimen reported here represents such a find. Its unusual arm morphology has provided provocative evidence in the ongoing **debate** over crinoid ancestry (Paul and Smith, 1984; Ausich, 1998; Mooi et al., 1994; Guensburg and Sprinkle, 2001, 2003; Rozhnov, 2002, 2007), but the phylogenetic importance of this discovery was diminished by a lack of diagnostic information. Is this fossil unequivocally a crinoid, and if so, where does it reside in the crinoid tree? Page 350

2. Analysis Of Blastoid Phylogeny, By Abrian E. Bodenbender
However, despite this attention and extensive monographic work, their phylogenetic history is still incompletely known. Page 351

Unlike Wagner's (1995) method of confidence interval sieving, stratocladistics does not treat discordance between phylogenetic hypotheses and the stratigraphic record [even if it is ''significant'' relative to a model of confidence intervals on stratigraphic ranges (Marshall, 1990, 1994)] as grounds for dismissing phylogenetic hypotheses without further evaluation. Page 354

The effect of this is to shift most of the burden for explaining incongruence between phylogenetic hypotheses and the stratigraphic record to ad hoc proposals of unequal preservation probabilities. Page 354

Despite the concerns addressed here, the stratocladistic analysis of blastoids demonstrates that the additional data recorded in the stratigraphic record lead to enhanced resolution of problems that are intractable, or nearly so, with morphological data alone. Page 367

Geographically variable preservation probabilities can potentially compromise one of the basic assumptions of stratocladistics and represent a problem for which there is presently no simple solution other than reducing the number of stratigraphic levels or adjusting stratigraphic parsimony debt on a tree by tree basis (Fisher, 1992). Page 367

3. Recognition Of The Echinodermata, By Daniel B. Blake
Phylogenetic back ground. The peculiar morphology of the Brisingida suggests a derived position (Mah, 2000) whereas the phylogenetic position of the Paxillosida has been much **debate**d. Page 366

Much **debate** centered on the position of the Paxillosida. Page 366

Much **debate** centered on the position of the Paxillosida. Bather (1921) and Mortensen (1921) thought that the paxillosidans were primitive [discussed in Blake (1989) and Blake, Janies, and Mooi (2000)]. Fell (e.g., 1963) argued that *Luidia* and *Astropecten* represent the first two steps beyond a somasteroid ancestry, and Gale (1987) and Lafay et al. (1995) subsequently favored a basal position for paxillosidans among crown-group asteroids. Alternatively, MacBride (1921), Blake (1987, 1988), Knott and Wray (2000), and Blake and Hagdorn (2003) rejected a primitive or basal position for paxillosidans. Page 366

4. Evaluating Internal Versus External Characters, By Lindsey R. Leighton
ABSTRACT—Evolutionary relationships between the Echinoconchidae, Productidae, Buxtoniinae, and Juresaniinae (Phylum Brachiopoda, Order Productida) have been the subject of **debate** for the better part of a century. Page 659

Third, the recent revision of the Brachiopod Volume of the *Treatise on Invertebrate Paleontology* (Brunton et al., 2000), proposes a different classification of the Productidina from the classification of the original *Treatise* (Muir-Wood and Williams, 1965), which once again raises the **debate** over the placement of these three higher taxa relative to each other. The original *Treatise* (Muir-Wood and Williams, 1965), which emphasized internal characters as diagnostic, placed the Juresaniinae within the Buxtoniidae, and suggested that the Buxtoniidae and Echinoconchidae were closely related. In contrast, the revised *Treatise* (Brunton et al., 2000) placed the Juresaniinae within the Echinoconchidae, and put the Buxtoniinae (reduced to a subfamily) in an entirely different superfamily, primarily on the basis of external features and shell shape (Brunton et al., 1995). Page 659

5. Plate Homology And Phylogeny, By David Ware
However, comparison of plate patterns in boot shaped cornutes also suggests that the precise phylogenetic position of scotiaecystids is still uncertain, depending on whether the absence of Mc is original. Page 785

6. The Study Of Crinoids During The 20th Century, By William I. Ausich
Development of a phylogenetic classification has been a primary pursuit of crinoid paleontologists during the 20th century. Wachsmuth and Springer and Bather vigorously **debate**d crinoid classification during the waning years of the 19th century, and although tremendous progress has been made a comprehensive phylogenetic classification is still the primary objective for crinoid research during the early 21st century. Page 1161

Acontinuing theme in crinoid systematics has been the struggle to create classification schemes based on presumed phylogenetic criteria as opposed to those merely phenetic. At the turn of the last century the phylogenetic content of classification schemes was being **debate**d, as it is when we enter the 21st century. Page 1161

The Crinoidea as a whole is regarded as monophyletic, but from whence this clade was derived and where it fits within the Echinodermata are matters of **debate**. Page 1165

The *Treatise* classification left those expecting a phylogenetic classification puzzled in many instances. Four examples illustrate this point. Page 1165

The immediate challenge for the study of crinoids is to establish a phylogenetic classification for the entire class. Page 1167

Both discovery of new faunas in critical intervals and uniform application of various phylogenetic techniques will be needed to sort out the pressing issues and to develop a working consensus. Especially important concerns are homology of aboral cup plates, origination of the Crinoidea, early morphologic diversification, phylogeny of the cladids, and definition and early phylogeny of the Articulata. Molecular techniques should be able to help resolve phylogenetic questions within the articulates, but most major phylogenetic questions are among various Paleozoic groups for which little help can be expected from molecular information. Page 1167

7. Distinguishing heat from light, By Philip C. J. Donoghue
It is unfortunate, therefore, that the fossil taxa that are deemed to be of greatest import, such as entirely soft-bodied organisms from Cambrian and Precambrian Lagerstatten, are among the most hotly **debate**d. Page 179

The example of carpoids demonstrates that fossil organisms can be difficult to interpret because no simple comparative model exists; consensus over carpoids remained out of reach because an organism that shared chordate and echinoderm like characters did not fit deuterostome phylogeny. Metazoan phylogeny remains poorly resolved and we have no idea of the homologies shared by most clades of phyla. It should come as no surprise that interpretations of fossil organisms such as Odontogriphus, the halkiieriids, wiwaxiids, and other halwaxiids, remain so hotly **debate**d. Page 182

References

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6. The Study Of Crinoids During The 20th Century, By William I. Ausich, Journal of Paleontology, 2001, Volume 75, Number 6, Pages 1161 To 1173 Page 81

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