Taking up the cudgels for paraphyletic taxonomy

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Classical Linnéan taxonomy requires natural groups of organisms based on hierarchically ordered grades of similarity. In contrast, cladistic phylogeny since Hennig is a method that recognizes and diagnoses natural groups by objective arguments. Modern taxa supported by cladistics are additionally required to be monophyletic. Due to this claim many established and approved terms have to be given up. But because of their practical usage, two sets of terms exist simultaneously: the correct taxonomical terms, and paraphyletic names. There is then a problem with taxonomical praxis for many who don't primarily work on systematics. Because of the status of phylogeny and taxonomy as an ancillary discipline, it is contrary to intention when linguistic ballast is necessary to fulfill theoretical dogmatism. - At first, paraphyla are natural groups, having a single common ancestor, and thus being a case of monophyly. This is never disputed by having descendants that obviously have left a formerly dispositive feature set (gestalt). Every paraphylum was once a pure monophylum. The claim, that the recent time of observation forces inclusion of all known branches, has no philosophical justification, as the observer should be irrelevant. In praxis, many paraphyletic stem groups, the „unwanted children" of modern phylogeny, build reasonable terms. They can be diagnosed objectively by excluding the descendants, if those build a sister group or not. Every definable type of gestalt should allow a taxon (of course without an artificial ranging of sub-, intra- and superfamilies). Real evolution is well described, if a more primitive anatomical and ecological stage is gathered within one term. To give an example, there is the pelycosaur problem. The word „Pelycosauria" is well known and definable, only rejected by its paraphyletic condition. The fact that it is used in many publications attests to its reliability. Correct formulation requires „stemgroup synapsids", „basal synapsids", „pelycosaur-grade synapsids" or „non-therapsid synapsids" This is increased if dealing with sphenacodonts, producing „non-therapsid sphenacodonts", although nobody uses „sphenacodont"-words for any therapsid or mammal. (Additionally, „Pelycosauria" is an unvalid designation, whereas „Eupelycosauria" is valid.) To discuss lower levels, say that a clade is [A+B(sp.1)]+B(sp.2). In consequence, one genus is not valid anymore, but there is no reason why the renaming (depending on a particular phylogenetic interpretation) describes evolution in a better way. Considering B a true stage from which A has strongly derived, justifying a new genus, would be the same, but without renaming. Dealing with historical synonyms is often exhausting and should be minimized for the future. - Admitting paraphyletic taxa is justified by phylogeny itself, as long as abiding by binomials. The stem line of a clade consists of real populations that theoretically could be binomially named. Be it that we could recognize a species as plotting on the stem line (never to be done with real diagnoses!), all descendants had to carry its binomen, from species to class level. This is the point - hierarchical Linnéan thinking is still widespread in a subtle way. Besides that, the proven method of binomial taxa is a reason not to overact with phylogenetic dogmata. Also some higher levels, if used judiciously, are a good tool to describe diversity and diversification. „Families" and „Classes" are soft and artificial, but not totally abstract (within a narrow stratigraphical window!). Taxonomy must be user-friendly. Linné and Hennig, both with their strengths and weaknesses, may yet come to an arrangement.

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Preservation of tetrapod skin in the Triassic Madygen Formation

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Excavations carried out in the lacustrine shales of the Kyrgyz Madygen Formation, a terrestrial succession of Middle to early Late Triassic age, yielded, among others, a rich floral assemblage, a highly diverse entomofauna including fossil insects with fully preserved bodies, and rare fossils of „enigmatic" small reptiles with skin preservation. In the previously described specimens the surface relief of the skin is conserved as an impression surrounding the skeletal remains. In case of the controversely discussed *Longisquama* both sides of the elongated integumentary appendages are imprinted in the fine-grained sediment and separated by a sedimentary core. These observations are in agreement with an early diagenetic cementation process active at the time of decay.

Here we discuss the recent find of a reptile fossil which displays a skin colouration pattern superimposed on a detailed scalation relief. Indicative for a substantial preservation of certain skin parts, the presence of a colouration pattern is not entirely surprising given the conspicuous wing colouration of certain previously described insects from the same locality and stratigraphic level. The laterally compressed reptile specimen includes the skull, neck, and anterior thorax surrounded by scale impressions whose