

I shall demonstrate this with a selection of examples including evidence of cryptic and deimatic markings in insects and swallowing avoidance by horseshoe crabs. The mutual arms race sometimes led to gigantism but alleged mimicry is unlikely, although blood sucking remains an intriguing question.

Galls and mines on fossil leaves from the Late Cretaceous of southern Negev, Israel

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The recently described Late Cretaceous (Turonian) flora of Israel contains 46 species of angiosperms. The traces of galling and mining activity are exceptionally abundant and well preserved. In the collection of more than 1000 leaves of terrestrial and aquatic angiosperms, all the leaves are infected. The gall remains include acarocecidia of microscopic tarsonemid mites, as well as zoocecidia, some of which show evidence of pupation in the gall, a supposedly advanced feature in the present-day gall midges, as is the detachment of the galls. The mines are linear and blotched, of several morphological types, showing various degrees of specialization in respect to the leaf histology. Unusual associations of galls and mines, with the miners probably acting as inquiline, suggest an elaborate cecidogenous system. These findings are evidence of an explosive evolution of mining and galling habits with the rise of early angiosperm-dominated communities. Some morphological innovations in angiosperms, such as marginal dentation, might have been stimulated by the gall production.

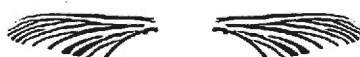
Pollen eaters and pollen morphology in Paleozoic and Mesozoic plants

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In each of the sequential periods of seed-plant evolution, there were pollen grains that can be called charismatic for they fascinated generations of palynologists. In the Permian, such peculiar pollen morphologies included the taeniate pollen (with the wall split into bands, or taeniae) of the *Protohaploxypinus* – *Lunatisporites* and *Vittatina* groups, as well as the discoid grains of the *Cordaitina* – *Cladaitina* group. Both types were found in the guts of hypoperlid, grylloblattid and psocid insects. The advent of the Mesozoic era was marked by a spread of smooth asaccate pollen of “*Ginkgocycadophytus*” type, virtually indistinguishable in the dominant orders of Mesozoic gymnosperms. Such pollen was never found in the guts. Charismatic through the Mesozoic was the rimulate pollen of *Classopollis* type. It was found as a monospecific load in the guts of large Jurassic katydids (*Aboilus*, Haglidae). The *Eucommiidites* group, related to gnetophytes, is peculiar in having additional apertures or leptomas parallel to the main sulcus. Recently this pollen type has been found in the guts of a xyelid genus, *Ceroxyela*. The reason why the Paleozoic and Mesozoic insects preferred just such pollen morphologies might have been that these were charismatic for them also: they recognized edible pollen grains by their surface features that evolved mainly for this purpose.



Fossils X 3

Programme and Abstracts

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