CENTRAL NERVOUS SYSTEM AND WEB BUILDING IN SPIDERS

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SUMMARY

Using Palmgren silver staining, and other histological methods, the supraoesophageal association areas in one Uloborid and six Araneid spider genera are investigated and compared.

The Araneid genera studied share a common, general plan which differs from that found by other authors in non-Araneid genera. This general plan shows sequential modifications from simple to derived Araneidae. The simple Araneid supraoesophageal ganglion is characterised by a large and fibrous central body, well developed posterior fibre tracts and poorly developed lateral optic masses. The derived Araneid supraoesophageal ganglion is characterised by a smaller, more homogenous central body and a prominent, well developed, anterior nexus of association areas. In particular the lateral optic masses and corpora pedunculata, which are interconnected to the suboesophageal ganglion, show strong development.

The degree of individual association area development may be correlated with the relative importance of visual or tactile sensory modalities, based upon the spiders web building behaviour.

Using the supraoesophageal structure as a tool, the taxonomic positions of Celaenia and Tetragnatha within the Araneidae, and the relationship of the cribellate spider family, Uloboridae, to the Araneidae, are discussed.

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Signed.

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