the Triænosa and Rhabdosa; in the former triæne spicules are present, but not in the latter. The following is a table of the proposed groups:—

Order II. LITHISTIDA.

Suborder I. HOPLOPHORA.

Demus I. TRIÆNOSA.

Family I. Tetracladidæ (Tetracladina, Zittel).
Family II. Corallistidæ (Rhizomorina, Zittel).
Family III. Pleromidæ (Megamorina, Zittel).

Demus II. RHABDOSA.

Family I. Neopeltidæ. Family II. Scleritodermidæ.
Family III. Cladopeltidæ.

Suborder II. ANOPLIA.

Family I. Azoricidæ (Rhizomorina, Zittel).
Family II. Anomocladidæ (Anomocladina, Zittel).

Relations of the Lithistida to the Choristida.—The presence of the desma throughout the Lithistida suggests a monophyletic origin for the order, for it is extremely improbable that this form of spicule has been separately evolved more than once. The resemblance of the Triænose Lithistids to the Choristid Streptastrosa is so marked that there can be little doubt of the close phylogenetic connection of the two groups, and further, the fact that the desma commences in the Tetracladidæ as a microcalthrops proves that the order of descent has been from the Choristida to the Lithistida, and not in the reverse direction. Again, since the point of connection with the Choristida is furnished by the Triænosa, it is this which must be regarded as the ancestral demus; the Rhabdosa are descended from it, and from the Rhabdosa the Anoplia.

The adherence of the Lithistida to the Choristida being admittedly through the demi Triænosa and Streptastrosa, the next question that arises is as to which of the families of these demi stand in closest connection, and I think it will be found that these are the Pachastrellidæ on the one hand, and the Tetracladidæ on the other, for if we compare such a Pachastrellid as *Pachastrella abyssi* with such a Tetracladid as *Macandrewia* we shall find a closer correspondence between the complements of spicules of the two, than in the case of any other two members of the two demi; thus each possesses as microscleres, microxeas, microstrongyles, and spirasters, of similar, indeed almost identical characters. Both possess oxeas, and the calthrops of *Pachastrella* are represented by the tetracrepid