is real enough; I doubt whether any one, including Professor Zittel himself, could distinguish the dichotriænes of some Lithistida from those of some Choristida, even under the highest powers of the microscope. In the general introduction we have shown reasons for regarding the Lithistida as derived from the Choristida, and not *vice versâ*, and connected with this is the probability that the dichotriæne is a part of the Lithistid inheritance from the Choristida. Thus then we may regard the discotriæne as a modified dichotriæne, and not *vice versâ*. If now we consider the disc, it may have been derived from the discotriæne, or independently evolved. Thus in *Scleritoderma*, to which the suggestion of being a parental, rather than a filial form is given by the presence of sigmaspires, we find strongyles very similar to the crepides of the monocrepidial desma accumulated to form a subdermal skeletal layer. The tendency amongst the Lithistida for spicular structures lying near the surface of the sponge to grow out in a plane parallel to it is exemplified by the broadening of the cladi of the dichotriæne, by which it becomes converted into the discotriæne. If the same tendency should affect the strongyles lying beneath the epithelium in *Scleritoderma*, they would become converted into discs like those of *Neopelta*; if some of these strongyles lie obliquely not quite parallel to the surface of the sponge, we may expect the distal end alone to expand, and then the discs with oblique stalks, also characteristic of *Neopelta*, would arise. Thus a separate origin for the *Neopelta*-disc is quite conceivable, and the explanation just given accounts for the position of the crepidial axis in the plane of the disc, a feature very difficult to understand on the hypothesis that the discs are modified discotriænes.

But next we have to consider the relationship of the discostrongyle of *Callipelta*; in the fact that the shaft is nearly always directed at right angles to the disc, and that the crepidial axis never lies in the plane of the disc, even when the shaft is absent, this much more closely resembles a discotriæne than a disc; the desmas of *Callipelta* are also much more like those of *Corallistes* than of *Neopelta*, and I think we may with greater probability regard the discostrongyle as a reduced discotriæne than as a modified disc. This being so the issue is much narrowed, and the only point for inquiry which remains is as to the relation of the discotriæne series (inclusive of the discostrongyle) to the *Neopelta*-disc. Is the latter a reduced discostrongyle, or of separate origin, or is any third explanation possible? I must confess that to me it is difficult to answer the first part of the question in the affirmative, an affirmative to the second one would avoid if one could, and a third explanation may be suggested. Instead of regarding the completed disc, let us fix our attention on the crepis; in the dichotriæne this is of course a dichotriæne, in the discotriæne it is frequently reduced to an orthotriæne; the general superficial extension of the cladome being independent of the direction of the deuterocladal axes, the existence of these ceases to have any meaning, and they disappear as useless structures; but the protocladal axes are also useless, and they similarly but subsequently