have we to give the preference, to the differentiation of the fibres into primary and secondary ones, or to their thickness and rigidity? Through my *Hippospongia anomala*, and indeed many other still unknown forms, the genus *Euspongia* is very closely allied to the genus *Hippospongia;* through *Cacospongia mollior*, O. Schmidt, it is not less closely allied to the true *Cacospongiæ;* both *Cacospongia* and its special modification the genus *Stelospongos* being connected with typical *Hippospongiæ* by means of forms similar on the one hand to my *Cacospongia intermedia*, and on the other to *Stelospongos friabilis* and *Spongia agaricina*, subsp. *dura*, Hyatt. The reader sees that in these genera we meet the same *circulus vitiosus* as in speaking of the mutual affinities of different families of the group Keratosa, and that the classifier in numerous cases has no other guidance than his own individual opinion. A quite analogous phenomenon we find also with regard to the next genus.

Coscinoderma.

This genus was created in the year 1883, and defined by Mr. Carter,[1] by many characters of which, however, only one can claim the designation of a generic one, namely, the uniformity of the skeletal fibres as in *Hippospongia*, these fibres not admitting of the distinction into primary and secondary ones, being all of the same thickness, and not forming polygonal meshes but such as may be compared with wool-whorls. Of course the system of internal canals, so very characteristic of *Hippospongia*, is not to be found here. Mr. Carter established his genus for only one species, *Coscinoderma lanuginosum*, and characterised it, *inter alia*, by a specially differentiated dermal membrane full of foreign bodies, the fibres of the skeleton being almost free from any enclosures, and by the evenness of the external surface. In the Challenger Collection I find a specimen with the dermal membrane, like that of *Coscinoderma lanuginosum*, full of foreign enclosures, and in general, apart from the colour of the skeletal fibres, just of the same properties as the above-mentioned species, with very fine skeletal fibres, and forming no polygonal meshes. But the outer surface of this specimen proved to be uneven, owing to the sharp-pointed denticulations of the skeleton. Further, I find a specimen whose dermal membrane cannot be easily drawn off, whose skeleton meshes are polygonal, but which shows on the surface of its skeleton the same denticulations, corresponding with sharp-pointed networks of the skeletal fibres, precisely as in the specimen I have just spoken of, but whose fibres are all of the same thickness, their colour—of a paler shade in the specimen before mentioned—being, as in *Coscinoderma lanuginosum*, rather brownish, and almost entirely devoid of any foreign enclosures. And finally, I find a specimen quite different from those before mentioned in its external shape, with fibres cored with foreign bodies, but still all of the same thickness. Are all these forms really so closely allied to one another as to be united into one genus?

[1] *Ann. and Mag. Nat. Hist.*, ser. 5, vol. xii. p. 309, 1883.