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Anmälanden och kritiker.

Die Korallenfaunen der Etage 5 des norwegischen Silursystems VON JOHAN KIÄR.

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D:r KIÄR of Christiania has recently published the first instalment of an intended larger work to contain the descriptions of all the Palaeozoic Corals of Norway. This first issue treats of the Lower Silurian Coccoseridæ and Heliolitidæ. The contents are divided in three parts: 1) descriptions of genera and species, 2) general considerations on the place of the Heliolitidæ in the zoological system and 3) their phylogeny.

As I have paid some attention to this special group of corals, I may be permitted to give a few comments upon the work of D:r K.

According to D:r K. the Coccoseridæ form the first »Unterfamilie» of the Heliolitidæ. I am certainly convinced that this assertion militates against all well founded and scrutinized facts. In spite of some superficial similarity the interior structure of the skeleton of the Coccoseridæ is of so fundamentally different a nature that they must decidedly be separated from the Heliolitidæ and placed as a coordinate family, alongside with these and other palaeozoic corals. While in all the genuine Heliolitidæ the composite polyparium consists of both vertical and horizontal elements, as well known, which through their variability originate a multiplicity of forms, in the Coccoseridæ, on the other hand, there prevails, as a rule, the vertical element exclusively to the horizontal, which only in a few instances in the genus *Acantholithus* appears as scarce tabulæ in the coenenchyma. In all the numerous specimens of the Coccoseridæ which I have been able to examine the polyparium is a compact mass of closely packed vertical trabeculæ of the same sort that I have called baculi. They are considerably larger than those which sparingly occur in the *Propora*, these being together with *Diploëpora* the only Heliolitidæ in which they are found. Besides, there are other important distinctions between the two families. In the Coccoseridæ there is a total want

of a distinct theca around the calicles. Their septa, in all the three genera of which they, according to my views, consist, are moreover of a type so entirely peculiar and deviating from the thin lamellæ of the Heliolitidæ, that they alone would have been sufficient for a separation. In the Coccoseridæ each septum is a thick lamina, in its margin subdivided in relatively thick lobules, all of equal size, curved upwards towards the centre of the calicles and each lobule is composed of microscopic fibrillæ, diverging at all sides from a central axis. Each lobe thus in fact is a curved baculus though adhering with its basis to a sort of rhachis common to them all. There is thus the important difference between these two sorts of septa, that in the Heliolitidæ the lamella consists of one set of parallel fibrillæ above each other, while in the Coccoseridæ the septum is dissolved into a series of fibrillous, oblique baculi.

D:r K. several times speaks of the porosity of the skeleton of the Coccoseridæ, but I can assert that I never has seen the slightest vestige of any porosity though I have examined transparent sections of a great number of them. Not even the original specimen of SEEBACH's *Stylastræa Roemeri*, which I have studied attentively, shows the least porosities in its skeleton. A few pits and hollows on the surface, caused by weathering have in all probability been mistaken for structural porosity. So it is also with what D:r K. describes from his specimen of »*Palæopora inordinata*» and others. From what he himself says¹ it is evident that the specimen which he there describes is badly preserved and corroded on the surface, not only »ausgewittert» but also »verwittert». Of course there are many strange things to be seen on a corroded surface, which have not the least connection with any organic structure of the coral but are entirely due to the inorganic agencies. I deny totally the existence of canals or tubes between the tubuli and calicles in the interior of the sclerenchyma of all real Heliolitidæ and Coccoseridæ and if such exist in any specimen this does not belong to either of these families.

As far as I am able to judge there are in D:r KIÄR's memoir five species of Coccoseridæ described. But it is not easy to make out this, as he in his descriptions of them employs a rambling sort of style and as to the illustrations, that should have guided us, it is to be regretted that D:r K. has not had opportunity to adorn his memoir with better figures on the plates I, II and figs 1—4 of pl. III. The mentioned five Coccoseridæ are »*Palæopora*» *inordinata*, *Coccoseris Schmidtii* and *Ungerni*, *Palæoporites estonicus* and *Heliolites intricatus*, var. *lamellosa*.

It is a strange proceeding of D:r K. to try to revivify the long ago exploded genus *Palæopora* for a highly doubtful species »*inordinata*», which never had been included in that genus by MAC COY.

¹ Page 5. At first he says that the surface »ist theilweise schön erhalten», then comes »die Oberfläche eines ausgewitterten Stockes» and at last »eine anscheinend unzerstörte Oberfläche». — And »die Beschreibung . . . in mehreren Beziehungen etwas modifizirt».

D:r K. says indeed himself that MAC COY with that name »allerdings die ganze Familie der *Heliolitiden* verstanden». Nevertheless D:r K. thinks that this name »ganz besonders passend erscheint» to employ for certain »ursprünglichen Formen», but he does not tell us the reason why it is so convenient. To increase this confusion he creates a new genus with the name *Palæoporites* and curiously enough he gives not a single word of definition to designate what he means with these genera. Now it is, according to the rules of the valid nomenclature, by no means »passend» or convenient again to make use of a generic name which long ago has been rejected on ground of its inadmissibility and moreover to place in it a species which the founder of that genus scarcely knew and never ranged there. This genus was, moreover, intended to receive *Heliolitidæ* and not *Coccoseridæ*, as D:r KIÄR's species. Nor ought a generic name as *Palæoporites* ever be admitted as it is so nearly alike with the former as to be easily confounded with it. Names on *-ites*, which first were used to denote minerals ought now never to be formed.¹

As to my assumption that *Heliolites intricatus*, var. *lamellosa* KIÄR, also is a *Coccoseridean*, I have been led to it through the figures 3 & 4, pl. VII, as far as may be inferred from them, joint with the description. I many years ago under that denomination had commingled two different species of corals, of which I now have referred one to *Acantholithus asteriscus* FERD. ROEMER and the other to *Heliolites parvistella* FERD. ROEM., the former exclusively Lower Silurian, the latter chiefly Upper Silurian. It is probable that the Norwegian coral is identical with the former.

One of the best portions in the work of D:r KIÄR is his description of *Proheliolites* (p. 21—22). He is no doubt quite right in placing this characteristic coral in a family of its own on account of its highly deviating septal structure and its peculiar manner of propagation. His observations on the gemmation merit to be followed up. He denies, however, what at first was observed by SARDESON, that there is a sort of gemmation in such a manner that a single coenenchymal tubulus changes into a regular calicle, instead of the usual gemmation when a single calicle is formed out of several tubuli and it seems to me that I also have seen instances of it. He says that singular tufts radiate from the septal spines but I cannot find whether he thinks them to be of organic or inorganic origin, the latter being in fact the case.

In the tribe of the *Plasmoporinæ* he admits only two genera, *Plasmopora* and *Plasmoporella*, and unites not only *Propora* but also *Diplopora* with *Plasmopora*. Many years ago I also, relying too much on the descriptions of MILNE-EDWARDS, considered *Plasmopora* and *Propora* as identical. But having since that time been able

¹ »Nominum genericorum exitus in *-ites*, regno lapideo principio proprius, regno animali alienus», says Professor SVEN LOVÉN in ANGELIN's *Iconographia Crinoideorum*. Such old and long established names as *Favosites*, *Heliolites* etc. must of course be retained but not imitated.

to study an ample material of beautifully preserved specimens I am convinced that these both genera are well differentiated and must be kept apart, though on other grounds than those adduced by MILNE EDWARDS. Those which D:r K. describes as *Plasmopora* from the Lower Silurian of Norway are in my opinion all without exception *Propora*. There is not a single Norwegian *Plasmopora* in his book. Now this is in accordance with the fact that the genus *Propora* is a pronounced Lower Silurian genus, while, as far as I know, there is as yet not a single Lower Silurian *Plasmopora* found.

What D:r K. calls *Plasmopora* (= *Propora*) *conferta* is certainly not that species as I have been able to ascertain through study of both the original specimens of MILNE EDWARDS. I believe that D:r KRÄR's *P. conferta* is identical with that Lower Silurian which I have called *P. bacillifera*. Such Norwegian species again as *P. primigenia* and *parvotabulata* belong to the group of the true *Prop. conferta* and are probably only varieties of it.

Plasmoporella is in fact a new generic type with its strangely curved calicinal tabulæ and characteristic coenenchyma. It is only a pity that it has not received another name, as that given supposes an affinity with *Plasmopora* which it indeed has not. It is perhaps related to the genus *Camptolithus*, but this can be decided only through direct comparison.

In accordance with D:r K. I also regard the plurality of the species of *Lyellia* as belonging to *Propora* (= *Plasmopora* p. p. KRÄR) and some of them being only varieties of *Pr. tubulata*. But in identifying *Diploëpora* with *Plasmopora* D:r K. has evidently gone too far. This Upper Silurian genus is too well distinguished from other *Plasmoporinæ* through its so remarkable double coenenchyma, which gives it, as it were, a position between these and the *Coccoseridæ*, without depriving it of its homology with the *Proporæ* in the structure of the theca.

The new genus *Nicholsonia* cannot be retained, because it has no characters separating it from *Heliolites*. *Heliolites hirsutus*, LINDSTR. Lower Silurian from Öland and Estland, is probably identical. Beside this several other genuine *Heliolitæ* are now known to be provided with long septal spines of the same nature as, for instance, *Hel. porosus*, *Hel. Barrandei*, *Hel. Liljevalli*. The coenenchyma is also of the same structure and amongst the *Heliolitæ* there are many instances that the theca is interseptally indented in twelve angles. Moreover the name *Nicholsonia* was already in 1885 preoccupied by DAVIS in his »Kentucky Fossil Corals» plate 51 fig. 6. Nor can the species be called »*megastoma* MAC COY», as his species consists of two most distinct forms; the first published (1851), is *Coccoseris megastoma* and the second (from 1862) is *Heliol. interstinctus*.¹

¹ Much confusion has been caused by the retarded publication of MAC COY's Silurian fossils of Ireland, which was ready to be printed as early as 1846 but

In his chapter on the systematic place of the Heliolitidae Dr K. treats a great number of delicate and intricate questions. No doubt he may be quite right in some of his assertions, but there are also several erroneous ones, the refutation of which I must leave to others more concerned than I am to do it.

His speculations about the phylogeny are concluded with a »Stammbaum» according to the now prevalent fashion that no systematic or descriptive treatise can be finished without such an ornament. In Dr KIÄR's »Stammbaum» it is astonishing to see how, for instance, *Heliolites decipiens* forms an independent branch of itself, far removed from the main branch of *Heliolites* although it is evident that it cannot seriously be considered as anything else than a form of growth of *Heliol. interstinctus* and in no way connected with *Plasmopora scita*. Moreover, in consequence of what has been stated above, where I have tried to correct Dr KIÄR's identifications, the position given by him to »*Plasm. conferta*», *Pl. ramosa*, *Pl. petaliiformis* and »*Nicholsonia*» is perfectly impossible. I think we had better leave all such pedigrees alone until we had gained a more real and reliable filiation of these corals to build upon. In our present, imperfect knowledge it is too early.

was not out before 1862. The latter date is the only one valid for the species therein contained.

G. LINDSTRÖM.