

NOTES ON SOME FISH REMAINS COLLECTED AT HORNSUND BY THE NOR- WEGIAN SPITZBERGEN EXPEDITION IN 1917.

BY

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Introduction.

In a hard greyish rock, obtained, according to the accompanying label, from the Permian formation 10 metres above the boundary towards the Carboniferous in the north-east corner of Hornsund, a number of very fragmentary fish remains, were found during HOEL and RØVIG'S Spitzbergen Expedition in 1917. They all consist of scales and loose teeth. For the opportunity of investigating them I am indebted to Prof. J. KIAER of Christiania, who kindly sent them to Upsala for determination.

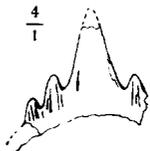
Even at a hasty inspection of this material I was struck by a certain resemblance between it and my own collection of fossil fishes from the Triassic of the Ice Fjord district, and further investigation proved that all the species from Hornsund were identical with or very closely related to certain of these. The Hornsund species are as follows: *Hybodus* sp., *Acrodus Spitzbergensis*? HULKE, *Acrolepis arctica*? A. S. WOODWARD and *Gyrolepis*? sp. It thus seems practically certain that the stratum in question at Hornsund is of triassic age, in which case, like the corresponding stratum in the Ice Fjord district, it most probably belongs to the Bunter. This is supported to some extent both by the abundant fish fauna which I have studied myself and at which I am now working and also by the Ammonite fauna (3. STOLLEY, p. 127). A fauna from Axel Island described by *Wittenburg* supports the occurrence of Werfener-strata, this also lower Triassic (6).

It is also noteworthy that these fish remains from Hornsund show a close resemblance to or are partly identical with certain species in the bone-bed found by SALOMON (3) at Middlehook, Ice Fjord, during the Geological Congress of 1910 at a level hitherto considered as belonging to the upper part of the Permian formation. All these fish remains strongly support the theory that here too we have a formation belonging to the lower Triassic.

Description of the species.

Hybodus sp.

A small tooth, unfortunately not completely preserved, seems to belong undoubtedly to the Genus *Hybodus*. The root is missing. Almost half of the crown being embedded in the hard stone, it cannot be removed without risk to the rest. As the adjoining figure shows, the crown has its ends bent basally, i.e. the lower edge is concave. The middle cusp seems to have been large and strong, but is not preserved in its entire length. On one side there are two rather small, well-marked cusps, on the other only one, but the evidence indicates a symmetrical development of the tooth. The sculpture on the small cusps consists of three, four or five comparatively thick ridges, converging slightly upwards. A very similar tooth occurs in SALOMON'S material from the above-mentioned bone-bed at Middlehook in the Ice Fjord.



Acrodus Spitzbergensis? HULKE.

There are several remains of *Acrodus* teeth. All except one are so fragmentary that their determination is impossible without direct comparison with better preserved material. Except in size they all correspond fairly well to *Acrodus Spitzbergensis* HULKE (1), but the teeth from Hornsund are all comparatively small, while the typical Ice Fjord examples attain a length of about 2.5 cm. What is most characteristic in the sculpture of the crown in *A. Spitzbergensis*, namely the double longitudinal ridges and the resulting longitudinal groove between them, does not seem to have been developed here, but as the typical teeth

previously known sometimes lack these structures, I do not consider that this makes it impossible to refer the new specimens in question to *A. Spitzbergensis*. Even if more complete material were to prove them a separate species, this would be closely related to *A. Spitzbergensis*.

Acrolepis arctica? A. S. WOODWARD.

Fairly numerous remains of ganoid scales occur in most of the samples from the stratum at Hornsund. The most common of them bear a striking resemblance to *Acrolepis arctica* A. S. WOODWARD (7) from the Ice Fjord, but seem generally to have come from rather small specimens, which appears to be the case with a great number of the fish remains from the same locality. *Acrolepis arctica* is found at the bottom of the black triassic schists of the Ice Fjord, at the so-called fish level (WIMAN 4,5 NATHORST 2). It is also noteworthy that similar scales also occur in the above-mentioned bone-bed.

Gyrolepis? sp.

Scales of a type resembling *Gyrolepis* are more rare than those like *Acrolepis*. The appearance of the scales is particularly characteristic and we undoubtedly have here a species that is also found in the Ice Fjord district, where it occurs even in strata a little above the fish level. A specimen collected by Dr. A. HOEL on the shore of Cape Thordsen, Ice Fjord in 1907 and belonging to the *Paleontological Institution of Christiania University* thus shows very good agreement with the scales from Hornsund. The cape Thordsen specimen is embedded in a nodule which contains, besides fish, *Posidonomya Mimer* and remains of Ammonites, and are quite certainly obtained from the fish level. The scales on the forepart of the flank resemble certain forms of *Colobodus*, while those of the caudal region indicate most closely an affinity with *Gyrolepis*. A more exact determination of the material discussed here is impossible. In the absence of more complete material I have, provisionally and with hesitation, referred all the remains to *Gyrolepis*. A more detailed description will be given in the treatise on the triassic fishes of Spitzbergen that I hope soon to publish.

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