

## A Permo-Carboniferous fossil from Tromsøyflaket, north Norway

TORRE O. VORREN & ODD W. LIND-HANSEN

Vorren, T. O. & Lind-Hansen, O. W. 1976: A Permo-Carboniferous fossil from Tromsøyflaket, north Norway. *Norsk Geologisk Tidsskrift*, Vol. 57, pp. 189–191. Oslo 1977.

The provenance of a Permo-Carboniferous fusulinid found in Weichselian glaciomarine sediments on Tromsøyflaket is discussed. The nearest source rock may be underlying float blocks in assumed Permian evaporite diapirs.

*T. O. Vorren & O. W. Lind-Hansen, Institutt for biologi og geologi, Universitetet i Tromsø, 9001 Tromsø, Norway.*

Oljedirektoratet i Stavanger has collected several samples of surface sediments from the continental shelf off Troms and Finnmark (Stortingsmelding 91 1976). Some of these samples are now being investigated for sedimentological and stratigraphic purposes at Universitetet i Tromsø.

A foraminifera of the family Fusulinidae, Fig. 1, has been found in a core sampled by gravity corer. The fusulinids are limited in age to Late Carboniferous and Permian (Moore et al. 1952). The core was sampled from Tromsøyflaket, N 71° 23' – E 18° 52', at a depth of 282 m (Fig. 2). The fusulinid was found 50 cm below the surface in glaciomarine sediments of Middle/Late Weichselian age.

Tertiary sediments probably occur at the base of the Quaternary sediments in this area (Fig. 2), (Rokoengen & Bugge 1976, Øvrebø & Tallerås 1976). However, several diapirs also occur (Sundvor 1974, 1975, Rønnevik et al. 1975, Syrstad et al. 1976, Øvrebø & Tallerås 1976). Some of the diapirs are overlain by only 110 m of Quaternary sediments (Bugge et al. 1974).

Regarding the source rock area for the fusulinid in question, several possibilities exist, since glaciomarine transport may occur over long distances:

The Svalbard region where fusulinid-bearing rock exist (Forbes et al. 1958).

The Nordkappbanken from which several fossiliferous Carboniferous boulders have been dredged (Dibner et al. 1970), indicating that Carboniferous rocks occur here at the base of the Quaternary sequence.

Permo-Carboniferous rock from the nearshore areas of north Troms and west Finnmark, although seismic investigation so far does not indicate this.

From a limestone float block in the underlying diapirs. Such a float block could have been brought to the surface by diapirism, which is a well known process, e.g. Gould & de Mille (1968). If so, the fusulinid must have been redeposited by glacial processes, perhaps several times during the Pleistocene. If this last explanation is correct, it supports the assumption that the

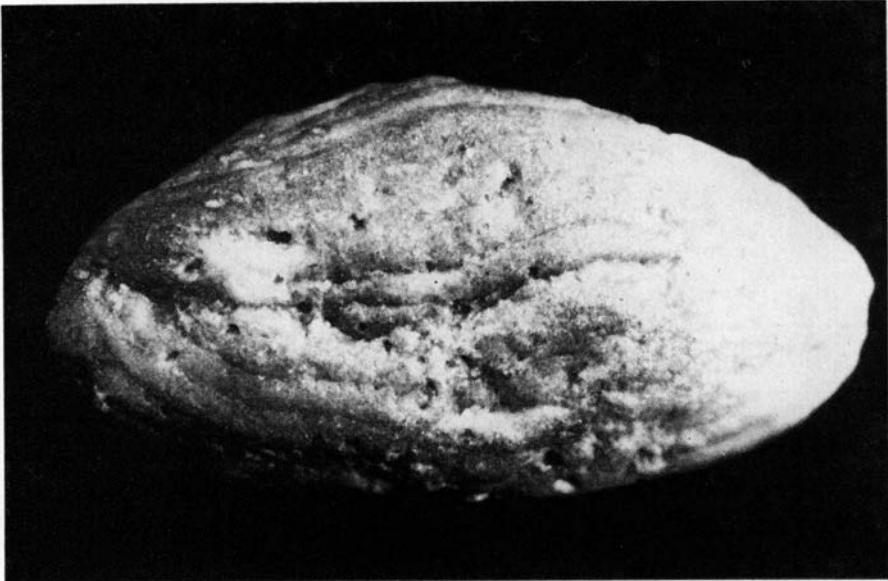
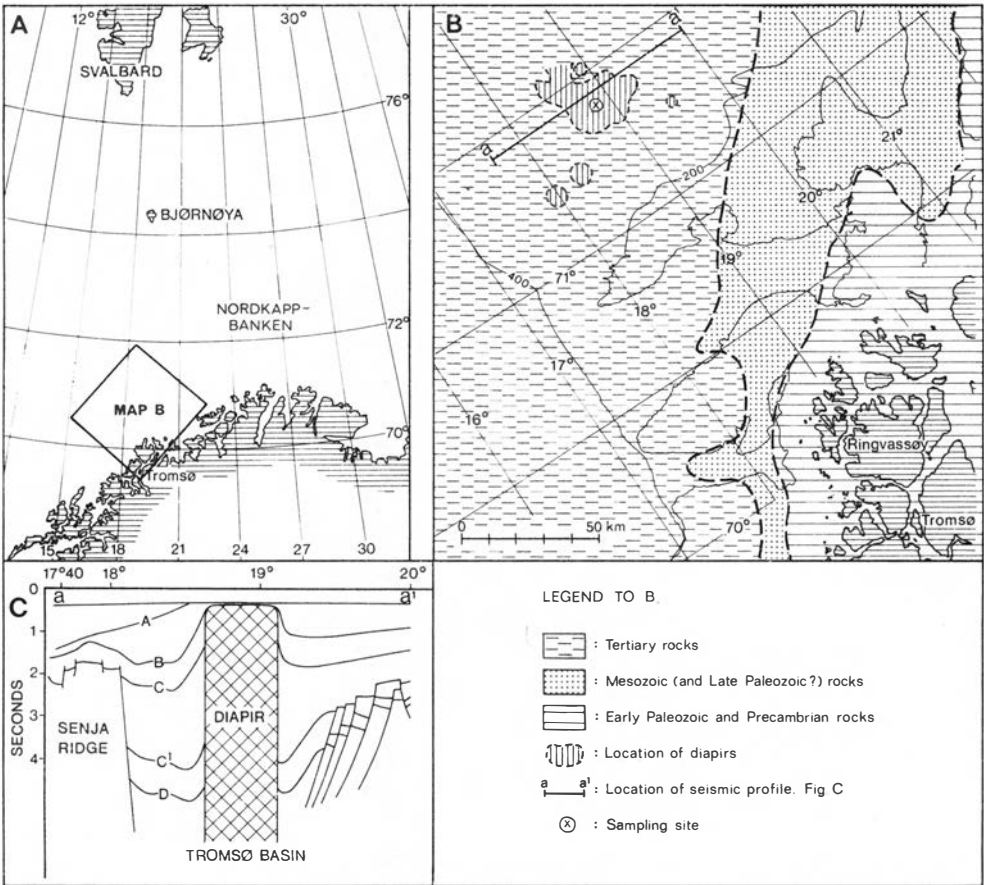


Fig. 1. The Permo-Carboniferous fusulinid,  $\times 15$ .



underlying diapirs comprise Permian evaporitic rocks (Syrstad et al. 1976, Øvrebø & Tallerås 1976).

*Acknowledgements.* – We are indebted to Oljedirektoratet for the samples, to Norges Almenvitenskapelige Forskningsråd for financial support, and to første amanuensis J. Nagy for confirming the determination of the fossil.

#### REFERENCES

- Stortingsmelding 91 1976: Petroleumundersøkelser nord for 62° N.
- Bugge, T., Maisey, G. H. & Rokoengen, K. 1974: Refleksjonsseismiske undersøkelser med sparker utenfor Troms 1972. *NTNF Continental Shelf Project 49*, 128 p.
- Dibner, V. D., Basov, V. A., Gerke, A. A., Solovyeva, M. F., Sisopatrova, G. P. & Shulgina, N. I. 1970: The age of the pre-Quaternary deposits on the bottom of the Barents Sea. *Oceanology 10*, 520–529.
- Forbes, C. L., Harland, W. B. & Hughes, N. F. 1958: Paleontological evidence for the age of the Carboniferous and Permian rock of Central Vestspitsbergen. *Geol. Mag.* 95, 465–490.
- Gould, D. B. & de Mille, G. 1968: Piercement structures in Canadian Arctic islands. *Am. Ass. Petroleum Geol. Mem.* 8, 183–214.
- Moore, R. C., Lalicker, C. G. & Fisher, A. G. 1952: *Invertebrate Fossils*. McGraw-Hill book company, Inc. N.Y.
- Rokoengen, K. & Bugge, T. 1976: Grunnforholdene på den norske kontinentalsokkel sør for 72° N. *Continental Shelf Inst. Publ.* 81, 44 p.
- Rønnevik, H., Bergsager, E. I., Moe, A., Øvrebø, O., Navrestad, T. & Stangenes, J. 1975: The geology of the Norwegian Continental Shelf, 117–130. In Woodland, A.W. (ed.): *Petroleum and the Continental Shelf of NW Europe*, Essex. 501 pp.
- Sundvor, E. 1974: Seismic refraction and reflection measurements in the Southern Barents Sea. *Marine Geol.* 16, 255–273.
- Sundvor, E. 1975: Thickness and distribution of sedimentary rocks in the Southern Barents Sea. *Nor. Geol. Unders.* 316, 237–240.
- Syrstad, E., Navrestad, T. & Bergseth, S. 1976: Gravity modeling offshore Troms, Northern Norway. Preprint Oljedirektoratet i Stavanger.
- Øvrebø, O. & Tallerås, E. 1976: The structural geology of the Troms Area. *G IV/6 ONS-74*.

Fig. 2. A: Index maps showing location of map B. – B: Map showing location of sampling site and outline of the pre-Quaternary geology after Rokoengen & Bugge (1976) and Øvrebø & Tallerås (1976). – C: Seismic profile along line a – á shown on map B (after Øvrebø & Tallerås 1976).

The seismic reflectors are tentatively dated to Late/Middle Jurassic (D), Barremian in Early Cretaceous (C<sup>1</sup>), top of Early Cretaceous (C), base of Tertiary (B) and Early Tertiary (A).