been described from different areas, mostly extracted from nodular limestones. Because of the lack of complete successions, besides the nearly complete ostracode-bearing section in Thurlinga, the value of these ostracode assemblages is still unimportant for defining the Devonian-Carboniferous boundary.

3) Entomozoid ostracods seem to be useful for biostratigraphic zonation within the Upper Devonian and lowermost Carboniferous. Because of their pelagic mode of life, they have a world-wide distribution within basin assemblages, but they are practically absent in shelf deposits.

The regional and stratigraphical distributions of entomozoid ostracods at the Devonian-Carboniferous boundary have been studied in detail on the USSR, China and Western Europe. Samples from the reopened trends of Stockum (Rheinische Schiefergebirge/Germany) demonstrate the existence of an additional entomozoid ostracode assemblage between the lenticellifer/tarar Interglomerata and the litora Zone (Schulze and Radoser, 1960) but this assemblage has not been found elsewhere.

Eventually, a remark might be made on the first occurrence of Richtersia litora in the U.S.S.R. During the meeting of the International Working Group on the Devonian-Carboniferous Boundary in Moscow (August, 1983), it has been stated by the Soviet ostracode specialists (Tsitchyna, Polosova, Butchekhov, Belosheved, Stepanov-763) that the first occurrence of this species in the Donbas, Southern Urals, northern regions of the Volga-Ural district and Mogudvar is «a little below the first appearance of Allothoughta sulcata», this in contrast to the experience in Northwestern Europe, where this ostracode only appears a little above the first appearance of S. sulcata.

INTRODUCTION

The most complete and continuous microfossil succession at the Devonian/Carboniferous boundary in Western Europe occurs in the extremely thick marine clastic sequences of Southern Ireland. Here a microfossil zonation scheme comprising eight biozones has been described for the late Devonian-early Carboniferous (Uppermost Famennian or Stephanian to Upper Tournaisian) interval.

The lack of diagnostic goniatite and conodont centred in the southern Irish sections limits their value as possible Devonian/Carboniferous boundary stratotypes. Therefore the present study was undertaken in an attempt to apply the Irish microfossil zonation scheme to the considerably thinner but well dated marine sequences in the classic area of the northern Rhode Island State Mountains in Germany.

The present authors have been studying the Northern Rhode Island State Mountains sequences since 1979 as part of a U.S. Working Group project on the Devonian-Carboniferous boundary. Preliminary results were published in the field guidebook edited by Proctor & Streel (1982).

PALYNLOGICAL RESULTS

Geologically all the sections with the exception of Stockum are located on the northern flank of the Rhensheild/Aluna Anticline. The Stockum section is located on the Ebbe Anticline to the South.

a) Geognostische Studien der Devonian-Carboniferous Transition beds in the classic area of the Rheinische Schiefergebirge in Germany are summarised. The LN/VI microfossil boundary has been identified in two sections.

b) A summary of the palynological results is given below.

At Renscheid in the far west of the area studied, the boundary between the LL and LE Biozones is located 10 m below the top of a green silty shale sequence (Hangenberg Schiefer equivalent). This level is also associated with a continuous conodont fauna. The uppermost member of the shale succession is composed of black shale and just below the top of the black shale much younger HD Biozonal assemblage was obtained.

The absence of the LN and VI spore biozones indicates that there is either strong condensation or a non-sequence in the lower part of the black shale. The presence of an "Allothoughta" — upper eucrinula conodont fauna in the algalite limestone above the black shale also indicates there is a non-sequence at several of the lower Hangenberg Kalk faunas are missing.

At Hannoverhöf the there is a continuous section through the Windham Kalk, and succeeding Hangenberg Schiefer and Kalk. A LE Biozonal assemblage was recorded from the top of the Windham Kalk. Several LN Biozone assemblages have been obtained from the upper part of the overlying Hangenberg Schiefer. Detailed sampling at 0.5 cm intervals close to the top of the Hangenberg Schiefer has allowed fine resolution of the LN/VI Biozonal boundary which is placed at 14 cm below the base of the Hangenberg Kalk (the level with Siphonodella sulcata).

Further east at Seiler, Oser, and Arpolds LL Biozonal assemblages have been obtained from the lower part of the Hangenberg Schiefer and LN assemblages from the upper part. However, at Oberhöhenröddenhausen LL Biozonal assemblages have been recorded throughout the Hangen-
beings Schiefer both from the type section and from a
nearby borehole. The uppermost half metre of the Han-
genberg Schiefer in this area has not yielded any spores.
A HD Bicarval assemblage was obtained from the base
of the Lingenste Aulenschlier. The palaeontological results
from this area indicate a surmance at the top of the
Hagenberg Schiefer with LE, LN, and Lower VI Bicarvans
missing.

At Stocken the most easterly of the Rhenish Mountain
localities, two wells have been investigated. In trench 1
the LN/VI Bicarval boundary has been recognised just
below the Stocken Limestone (Level with Acuminatiares
preussiin preussiin) and close to the level with the upper
most Triaenodonta conodont fauna. The palaeontological
evidence from trench 2 is unstable due to reworking of some
microfloras.

In conclusion, the study has shown that the Hassel-
bach section offers the most complete miozoic suc-
cession at the Devonian-Carboniferous boundary. The pre-
ness of important conodont and geosynclinal faunal data in
the section indicates Hasselbach to be the best systemic
 stratotype available in the Rhenish Slate Mountains.

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ON THE PRESENCE OF QUASIENODOTHYRIDAEE
IN ARTIC ALASKA

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The Devonian-Carboniferous Quasiendothyra zone succession is well
established in numerous basins of Eastern and Western NorthAmerica. This article
reports the presence of thick, shallow-water carbonate successions in the western part
of the De Long Mountains, Arctic Alaska. The Kugurork Formation and the uppermost
part of the Baird Group (Bidegaak and De Long Quadrangles) display two to three
horizons of pelitoidal, Cambro-Ordovician, graptolite-rich microfloras containing
the Quasiendothyra (Evan and O. koschata) and E. porifera species. These assem-
bles are similar to those known from the De Long Quadrangles and from the
Tlingtian region of Northern China. The presence of Quasiendothyra in these
areas indicates a Late Devonian to Early Carboniferous age for the deposition of
these successions.

In the American Arctic, the Early Tournaisian Zone 6 is recognized
by the presence of Quasiendothyra kombatiana, O. kosmatsii and
Kosmatella. The resemblance of this fauna is similar to that of
the De Long Quadrangles. The latest Tournaisian Zone 5 (Kuah, 1967) is
recognized from the presence of Quasiendothyra bellii-O. kousmatsii-Kosmatella.
The stratigraphic position of Zone 6 is controversial. It
occurs in the eastern part of the Erskine Formation of North
ern Russia, and is usually considered in the Early Carboniferous by
many Russian workers (Voronezh, 1970; see discussion in Simakov, 1981), but for
an opposite view refer to Bannet & Chaneux, 1982. Consequently,
workers would generally consider most of the level at Devonian

lipidata, then O. bellii-O. liphartii-O. communis communis as
semblage. These two Zones are known from the latest
Fammenian of the Tethys and in particular in the tran-
sition between the Devonian and Carboniferous of North
ern France. Coined as early Tournaisian (On I a) by co-
hn. & Jys (1970) or by dekine (1981) as Eosauensendi-
thyra bellii, Eosauensendothyra regularis, and Eosauensendothyra
O. communis) is now considered late Fammenian by the
vast majority of the stratigraphers.

In Alaska, the early Tournaisian Zone 5 is recognized
by the presence of Quasiendothyra kombatiana, O. kosma-
tsii and Kosmatella. This assemblage is similar to the Ques-
iendothyra kombatiana, O. kosmatsii, Kosmatella grani-
dis fauna reported by doKk in the Timp-Pechora region
(1981). Another assemblage with the Russian Arctic
material is the presence of Quasiendothyra kombatiana at
the Zone S/6 junction.

The stratigraphic position of Zone 6 is controversial. It
is observed in the original Erskine Limestone of North
ern Russia. It is usually considered in the Early Carboniferous by
many Russian workers (Voronezh, 1970; see discussion in Simakov, 1981), but for
an opposite view refer to Bannet & Chaneux, 1982. Consequently,
workers would generally consider most of the level at Devonian