Stratigraphy and Paleo-Environment of Brucebye Beds, basal Tyrrellfjellet Member, Svalbard.

**Felix Gradstein, University of Oslo, Norway, Vladimir Davydov, University of Boise, ID, USA,
Carl Dons and Jon Halvor Pedersen, Lundin Norway As, Judith Hannah, Colorado State U., Colorado, USA**

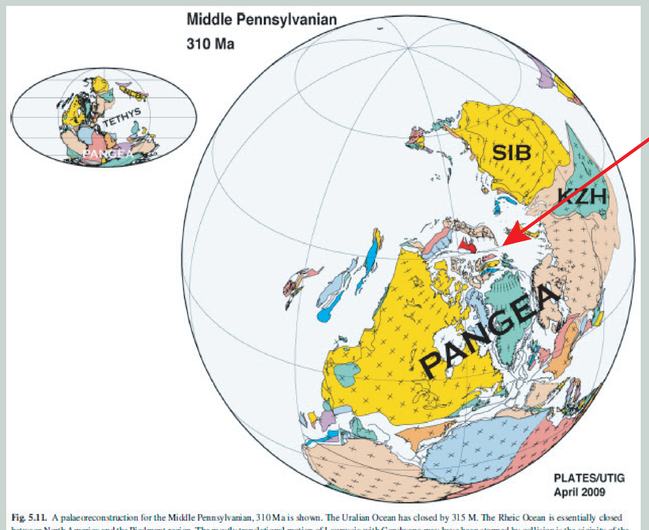
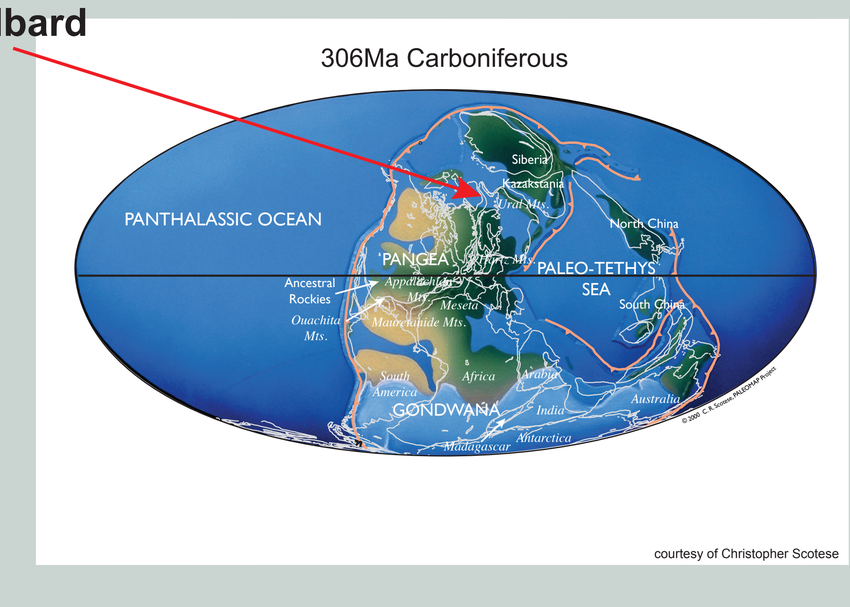


Fig. 5.11. A palaeoreconstruction for the Middle Pennsylvanian, 310 Ma is shown. The Uralian Ocean has closed by 315 M. The Rheic Ocean is essentially closed between North America and the Piedmont region. The mostly translational motion of Laurussia with Gondwana may have been stopped by collision is the vicinity of the northern Appalachians and Iberia. KZH, Kazakhstan; SIB, Siberia. In the inset Molleweide projection of the globe, NCB, North China block.

Svalbard



courtesy of Christopher Scotese

Brucebye Bed, Tyrrellfjellet

Jon Halvor below Brucebye Bed, Kolosseum

Brucebye Beds, Kapitol, Svalbard

Tyrellfjellet locality, Billefjorden:

Sample # 1 on 30 August in basal Brucebye bed; irregularly bedded black bituminous limestone underlying lighter colored crinoidal organoclastic limestone.

Sample # 2 of 30 August is a loose block, collected in alluvial fan slope under outcrop; more shaly than sample 1.

Age: Both samples belong to the *Schwagerina robusta-Ultradaixina bosbytauensis* fusulinid zone of latest Gzelian age, latest Carboniferous; 300- 298.9 Ma.

Organics and diagenesis: In both samples # 1 and #2 the fusulinid microfossils appear to be in place, and no indication of abraded or fragmented specimens due to re-sedimentation. At the same time, the microfossil specimens are severely compressed during early diagenesis, as many specimens have post mortality damage or are crushed and broken. It appears that this shallow-water limestone was very porous and permeable during sedimentation and early diagenesis, allowing organics to easily migrate in the sample space.

Kolosseum locality

Basal Tyrrellfjellet Mb with fusulinid limestone; bluish, dense limestone, from visual observation not rich in organics. Sample # 1 September 1 –taken by Jon Halvor Pedersen in situ at base of the steep cliff .Sample # 1 September 2 – two loose pieces of fusulinid lst in loose scree just below the outcrop.

Age: both samples belong to lower Asselian *Sphaeroschwagerina vulgaris –S. fusiformis* fusulinid zone of earliest Asselian Age, earliest Permian; 298.9 - 296 Ma

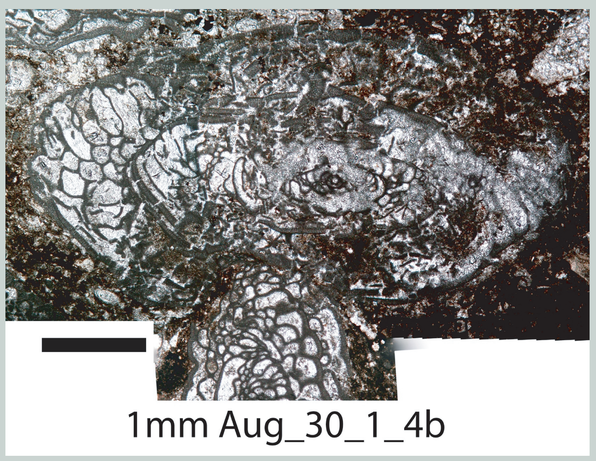
Cementation: Samples are coarse, poorly sorted grainstone; some shells are abraded and crushed before the diagenesis. The meteoritic cementation was very early. Hence, organics had less possibility to migrate in than in the August 30 and 31 samples

Biofacies: Deposition of all 6 samples (30 and 31 August and 1 September) was most likely initiated high in the photic zone in the warmest waters above storm-weather wave base and possibly above fair-weather wave base.

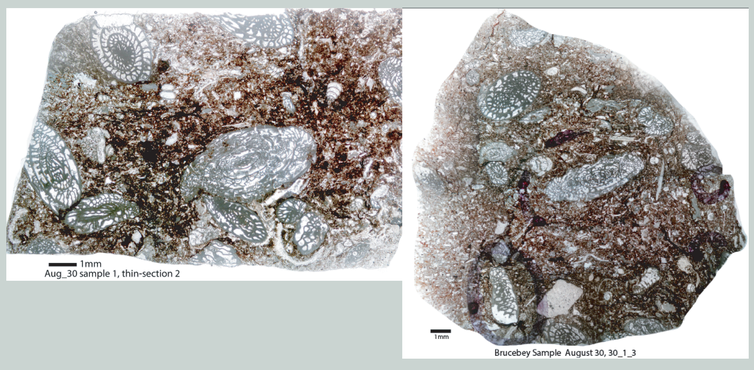
Kapitol locality:

Samples # 31 August 1 and 2. Two Fusulina limstone samples in profile above glacier. Picked the sample in scree just below the outcrop Very bituminous. The actual level of the fusulinid lst may be seen in the Kapitol profile above a karst level.

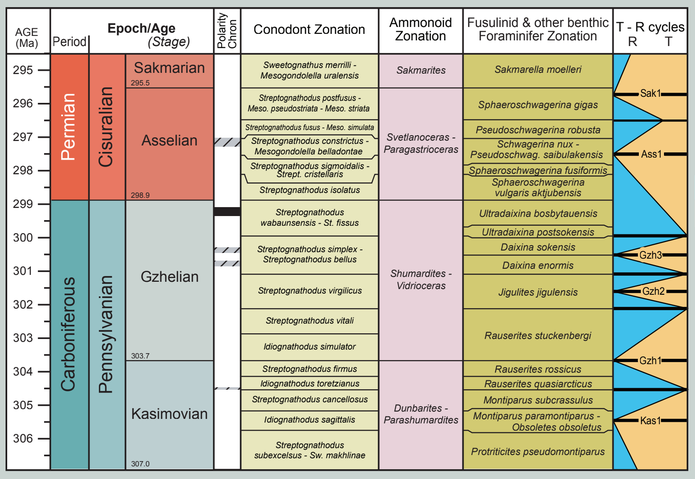
Age: Both samples belong to uppermost Gzhelian *Schwagerina robusta-Ultradaixina bosbytauensis* fusulinid zone of latest Gzelian age, latest Carboniferous and 300- 298.9 Ma



Fusulinids crushed during diagenesis, Brucebye Bed, Tyrrellfjellet



Fusulinids, Brucebye Bed, Tyrrellfjellet, Svalbard



Brucebye Kolosseum
Brucebye - Tyrrellfjellet and Kapitol

Stratigraphic Summary Brucebye Beds, Svalbard with abundance peak of fusulinids