

**PALYNOLOGICAL ANALYSIS OF THE
3600' - 4740' INTERVAL IN THE
CHANCE J-19 WELL,
YUKON TERRITORY**

by
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Thirteen cuttings samples from the 3600' – 4740' (1093.7m – 1444.8m) interval in the Canoe River Chance J-19 well, Yukon Territory, were prepared for palynological analysis. In addition, eight slides in the G.S.C. collection, prepared from core samples, were examined. No cuttings were available from the 4080' – 4280' interval.

The objective of the study was to confirm the ages of the rocks assigned to the Cretaceous and to the Mississippian. The latter yielded very little *in situ* material and a precise age could not be assigned. The Cretaceous section, assigned by the G.S.C. to the Albian, Whitestone River Formation, is of Aptian-Barremian age and belongs to the Mount Goodenough Formation. There is no definite indication of rocks of post Mississippian/pre-Cretaceous age.

The data are plotted to scale in semi-quantitative format at the end of the report.

Interval Top	Age	Formation
3600' (1097.3m)	Early Aptian	Mount Goodenough
3700' (1127.8m)	Late Barremian	Mount Goodenough
4060' (1237.5m) log.	Mississippian	Hart River
4740' (1444.8m) deepest sample studied.		

The Late Barremian top is drawn at the sample depth where markers first appear. It may therefore be slightly low. The Mississippian top is from the NEB Catalog.

Interval: 3600' – 3700'. Early Aptian

The age of this interval is based on the following criteria:

- The presence of *Heslertonia heslertonense* at 3600'.
- The presence of *Pseudoceratium nudum* and *Cerbia tabulata* at and below 3600'.

Remarks

The 3600' cuttings sample contained a moderately rich assemblage dominated by bisaccate pollen and reworked Mississippian spores. Most of the dinocysts have relatively long ranges in the Early Cretaceous but *Cerbia tabulata* does not range above the Aptian, *Heslertonia heslertonense* above the Early Aptian and *Pseudoceratium nudum* above the basal Aptian.

Species such as *Pseudoceratium polymorphum* and *Muderongia asymmetrica* confirm the Aptian age although they may have caved.

The diverse dinocyst assemblage, abundance of bisaccate pollen and the lack of pteridophyte spores indicate an open marine environment, at some distance from the shoreline.

The age of the interval indicates that the section should be assigned to the Mount Goodenough Formation.

Interval: 3700' – 4060' (log). Late Barremian

The age of this interval is based on the following criteria:

- The presence of *Hystriosphæridium arborispinum* at and below 3700'.
- The presence of *Cassiculosphaeridia magna* at 3900'.
- The presence of numerous *Odontochitina operculata* and *Palaeoperidinium cretaceum* down to 4080'.

Remarks

The samples from this interval yielded rich and diverse dinocyst assemblages. The appearance of *Hystriosphæridium arborispinum* at 3700' indicates the presence of Barremian strata which is confirmed by the occurrence of *Cassiculosphaeridia magna* at 3900'. The top of the Mississippian Hart River Formation is placed at 4060' by the NEB. The rich 4080' dinocyst assemblage is therefore derived from cavings from just above the boundary. It contains numerous *Tubotuberella uncinata*, a species which does not range above the Barremian.

All the assemblages down to 4080' contain numerous specimens of *Odontochitina operculata* and *Palaeoperidinium cretaceum*. These may have caved but similarities in preservation suggest that at least some are *in situ* favoring a Late Barremian age for the interval.

The abundance and diversity of dinocysts with abundant bisaccate pollen but rare pteridophyte spores, point to an open marine environment, at some distance from the shoreline.

The age of the interval correlates it with the Mount Goodenough Formation. There is no indication in the assemblages of rocks of pre-Cretaceous, post Mississippian age.

Interval: 4060' (log) – 4740'. Mississippian

Remarks

This section has been assigned to the Mississippian Hart River Formation which consists predominantly of limestones. No cuttings were available between 4080' and 4280' and those from 4280' to 4740' yielded rich assemblages of Cretaceous palynomorphs caved from the overlying interval. Also present are Devonian, Jurassic, Triassic and Mississippian spores and pollen which, from their preservation, are also cavings contaminants. *In situ* palynomorphs are unidentifiable due to pyritization.

Eight slides from the GSC collections were also examined. These were prepared from core samples and most contain amorphous vitrinitic and inertinitic debris but no *in situ* spores or pollen. Three from the 4235' – 4245' interval yielded small numbers of scolecodonts. These are annelid worm teeth which, although extant, are extremely rare in palynological preparations from post-Palaeozoic samples.

One core sample slide (4240' – 45') also contains a specimen of *Weylandites* sp., a Permian pollen grain. The preservation suggests that it is a contaminant.

Well Name : CHANCE J-19

Operator :
Interval : 3600.00' - 4740.00'
Scale : 1:2500
Date : 22-October-2001

PALYNOMORPH DISTRIBUTION
Style : Semi Quantitative Symbols
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