ABSTRACT VOLUME

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LORNA J. O'BRIEN

CALEB M. BROWN

KIRSTIN S. BRINK

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Cover and logo designed by Caleb Brown.

Conference Logo: The logo for the 2012 Canadian Paleontology Conference is inspired by the fossils of the Burgess Shale. *Anomalocaris canadensis*, the top predator of its time and arguably the most iconic animal of the Cambrian Explosion, is backed by the dramatic Toronto skyline. The lobopod *Hallucigenia sparsa* remains one of the most enigmatic Burgess Shale fossils. The Royal Ontario Museum houses the largest collection of Burgess Shale fossils in the world, with ongoing expeditions since 1975.

c/o Department of Earth Sciences
Room ER4063, Alexander Murray Building
Memorial University of Newfoundland
St. John's, NL A1B 3X5 CANADA

crustaceans and chelicerates that are comparatively closely related to trilobites, allow those organisms to disperse comparatively rapidly and widely. This could account for the broad distribution of the '*R. carleyi*' Group ichnospecies.

XIPHACTINUS SP. (TELEOSTEI: ICHTHYODECTIFORMES) FROM THE FAVEL FORMATION, EAST-CENTRAL SASKATCHEWAN, CANADA

Meagan M. GILBERT[1]
[1] Department of Geology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada

Remains of the large teleost *Xiphactinus* sp. (RSM P2466.1) were recovered by the Royal Saskatchewan Museum from the Turonian marine deposits of east-central Saskatchewan near the Pasquia Hills. During the Late Cretaceous, *Xiphactinus* was a dominant predator in the Western Interior Seaway (WIS), reaching lengths approaching 20 feet. Due to their large size, these fish are believed to have competed with top predators such as plesiosaurs and mosasaurs for resources, and are thus an important component of WIS paleoecology. The partial skeleton consists of a semi-articulated skull, fragmented portions of the pectoral girdle, pelvic fins, and several ribs and vertebrae, both articulated and disarticulated. This specimen is significant, as it is the oldest and most complete *Xiphactinus* recovered from Saskatchewan. Additionally, not only does it allow for description and comparison, but also provides potential insight into paleogeography, as this specimen is one of the most northern occurrences of the genus from the Western Interior Seaway of North America.

PALEOECOLOGY AND PALEOCLIMATOLOGY OF THE PLIO-PLEISTOCENE BYLOT ISLAND FOSSIL FOREST, NUNAVUT, CANADA

Alexandre GUERTIN-PASQUIER[1,2,3,4], Daniel FORTIER[1,3] and Pierre J. H. RICHARD[2]
[1] Cold Regions Geotechnical and Geomorphology Laboratory, University of Montreal, Montreal, Canada
[2] Paleo-phytogeography and Palynology Laboratory, Department of Geography, University of Montreal, Montreal, Canada
[3] Center for Northern Studies, Laval University, Québec, Canada
[4] Musée de Paléontologie et de l'Évolution, Montreal, Canada

Well-preserved Plio-Pleistocene organic remains with wood pieces up to two meters long were discovered in organic, alluvial and glacio-lacustrine sediments on a plateau located on Bylot Island (73°10' N, 79°30' W, Piraux, 2005). Only a dozen other sites are known from this epoch beyond 60°N of latitude. However, detailed paleoecological and paleoclimatological reconstructions of the study site require that the local plant species,

stratigraphy and depositional environments be better known. The objectives of this study were: 1) to describe the chrono-stratigraphy of the site; 2) to establish a list and the succession of different pollen taxa found in organic and inorganic units of the site; 3) to estimate their age; and 4) to infer the past climatic conditions of the site. In this order, several stratigraphic exposures were excavated, logged, and sampled for grain-size distribution, paleomagnetic and pollen analyses. A differential GPS was also used to characterize the stratigraphic units associated with the organic fossil units at a small and large scale.

Results of the grain-size distribution analyses suggest the following deposition sequence starting from a depression in the bedrock (Tertiary shale): 1) a glacial diamicton with local clasts; 2) a silty sediment of glacio-lacustrine origin; 3) an organic peat unit; 4) an alluvial type unit; 5) a fluvio-glacial sediment; and 6) a glacial diamicton of foreign origin. The pollen analyses suggest vegetation similar to that of the current tree-line limit, situated about 2000 km south of the site. The climatic conditions resulting from the coexistence approach were warmer (around 0°C for mean annual temperature and 15°C for the mean temperature of July) and more humid (most likely around 500 mm/yr of precipitation with possibly up to a 1000 mm/yr), allowing the temporary local growth of pines (*Pinus* type *strobus* and *banksiana*), spruce (*Picea* cf. *mariana),* alder (*Alnus* type *crispa)* and larch *(Larix*). Paleomagnetic analyses and the presence of extinct species finally suggest an age for the organic fossil deposits most likely between 2,581 and 3,040 My (normal polarity chron).

Reconstruction of the growing conditions of this forest will improve our knowledge of the climate prevailing at these latitudes during the Plio-Pleistocene transition, which is recognized as the last period significantly warmer than the present (Pagani et al., 2010).

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