

CARBONIFEROUS CONODONTS, ALGAE, AND FORAMINIFERS FROM THE LISBURNE GROUP,
PRUDHOE BAY, ALASKA

T. R. Carr
ARCO Oil & Gas Company
Box 2819
Dallas, TX 75221
214-422-6260

B. L. Mamet
Department of Geology
University of Montreal
Montreal, Quebec

ABSTRACT

Continuous cores from the ARCO/EXXON South Point State 1 and Pingut State 1 wells at Prudhoe Bay penetrated the Carboniferous Wahoo and Alapah Limestones (Lisburne Group). The upper Alapah and the entire Wahoo were examined for conodonts, foraminifers, and algae. The Alapah and Wahoo Limestones contain abundant, but low diversity foraminifer and conodont faunas. The succession of foraminifers and conodonts is used to develop a detailed local zonation for well to well correlations. The larger scale aspects of the zonation permit correlation of the Alapah and Wahoo Limestones with the Carboniferous sections in western Europe, as well as with the Mississippian and Pennsylvanian sequences of North America.

The Alapah Limestone is characterized by foraminifers of zones 16s through 19. Conodonts from the uppermost Alapah (Zone 19) include *Gnathodus girtyi simplex* and *Rhachistognathus muricatus* and are assigned to the *muricatus* Zone. The boundary between the Alapah and the overlying Wahoo coincides with a non-diagnostic interval between foraminifer zones 19 and 20 and with the first appearance of rare specimens of *Declinognathodus noduliferous*. The first appearance of *D. noduliferous* is coincident with the mid-Carboniferous boundary and occurs in close proximity to the Mississippian-Pennsylvanian boundary in North America. Foraminifer zones 20 and 21 are easily recognized in the Wahoo and can be intergrated with four conodont zones. The conodont zones in the Wahoo are believed to be sensitive to environmental fluctuations and may be of only local biostratigraphic significance.

MISSISSIPPIAN CONODONTS, LISBURNE GROUP, ST. LAWRENCE ISLAND, ALASKA

H. Richard Lane and Paul F. Ressmeyer
Amoco Production Company
Box 591
Tulsa, OK 74102
918-660-3383

ABSTRACT

Late Mississippian conodonts recovered from two sections of the Lisburne Group exposed along the Ongoveyuk River, western St. Lawrence Island, are few, poorly preserved, yet relatively diverse. At the West Fork and East Fork Ongoveyuk sections, the lower, dark-colored, cherty beds yield conodonts that belong in the upper part of Lane Faunal Unit 8. They are correlatives of the upper St. Louis Formation in the Mississippi River Valley, and in northwest Alaska, are equivalent to the upper Nesorak and Kogruk Formations (Lisburne Group) along Nesorak Creek near Point Hope, and the Kogruk Formation at Trail Creek, De Long Mountains, Misheguk Mountain quadrangle. The upper, light-colored, thicker bedded interval at the West Fork exposure yields conodonts assignable to Lane Faunal Unit 9 of latest Meramecian and earliest Chesterian age. This fauna occurs widely over North America in beds that correlate with the Ste. Genevieve Limestone in the Mississippi River Valley. On the Lisburne Peninsula, this interval correlates with at least a portion of the Kogruk Formation exposed at Niak Creek and Cape Lewis north of Point Hope. Conodont alteration indices (CAI) are very high and variable, ranging from 5.5 to 8.0, suggesting they resulted from contact rather than regional metamorphism.