



Development of an Integrated Oil Spill Research Center at UAF – Innovative Interdisciplinary Research that Matters to Alaskans

Mark Myers
Vice Chancellor of Research
University of Alaska Fairbanks

Based upon recent historical change and coupled oceanographic and atmospheric models, it is predicted that the Arctic Ocean will be seasonally ice free by mid-century. This will open up opportunities for shorter international shipping routes and also create the opportunity to develop increased Arctic tourism, fishing, mining and oil and gas development. Associated with these opportunities is the increased risk of oil spills from vessels, wells, offshore production facilities, or marine pipelines. The challenges associated with responding to marine Arctic oil spills include very cold temperatures, sea ice, limited daylight hours, lack of infrastructure, remoteness from resources and the unique ecosystem.

The University of Alaska Fairbanks is developing an integrated oil spill research center in order to address some of these challenges. The center will draw from university and partner expertise in a broad range of research fields including geology, engineering, physical and biological oceanography, atmospheric and weather science, ecosystem analysis and social science.

Specifically, the UAF center will develop capacity to improve on monitoring and tracking oil spills in ice-covered water using integrated sensor suites including extensive use of unmanned aerial vehicles and autonomous underwater vehicles, and portable high frequency coastal radars. Additionally the center will develop improved atmospheric and oceanographic predictive models for the movement of oil in ice-covered waters, as well as community-based monitoring approaches and a better understanding of the effects of an oil spill on the complex arctic food web.

AGS Luncheon

Date & Time: Nov. 15th, 11:30 am – 1:00 pm

Program: Development of an Integrated Oil Spill Research Center at UAF

Speaker(s): Mark Myers
Vice Chancellor of Research
University of Alaska Fairbanks

Place: BP Energy Center

Reservations: Please make your reservation before noon Tuesday, Nov. 13th, 2012.

Cost: Seminar only, no meal: Free

Reserve a box lunch: \$15

Reserve a hot lunch: \$20

Lunch with no reservation:
On an "as-available" basis only

E-mail reservations: vp@alaskageology.org
Or phone (907) 644-4429

For more information: visit the AGS website:

www.alaskageology.org

About the Speaker:



Mark Myers serves as the Vice Chancellor for Research at the University of Alaska Fairbanks where he oversees administration of the university's \$123 million-per-year research enterprise and supervises the university's standalone research institutes.

Prior to serving in this capacity Myers held various senior executive, scientific research and petroleum

industry positions including the State of Alaska Natural

Gas Pipeline Coordinator and the 14th Director of the United States Geologic Survey where he managed the Nation's largest water, earth, and biological science and civilian mapping agency. Before joining the USGS he was employed as State Geologist and Director of the Division of Oil and Gas for the State of Alaska. He has also worked in various exploration and development positions with Chevron, ARCO, and Phillips Petroleum. In 2003 Myers retired as Lt.Col. in the Air Force Reserve.

Myers is an internationally recognized clastic sedimentologist and expert on North Slope petroleum geology. He holds BS and MS degrees in Geology from the University of Wisconsin-Madison and a Ph.D. in Geology from the University of Alaska Fairbanks.

Thoughts from the Editor:

Our AGS president is traveling this month. Art is in his first year of retirement, so he's exercising his new freedom from the leash that used to attach him to a desk. Although he spoke of things like hiking and camping to fill his retirement days, I know almost for fact that he's in Florida honing his shuffleboard game as we speak. Since editors abhor blank white space on the printed page, I decided to fill the space normally occupied by the President's column.

Over last weekend prior to the elections I happened to travel to the "battleground" state of Wisconsin. From the nuisance perspective we should consider ourselves lucky the national figures choose not to do battle in Alaska. My parents' phone rang off the hook with calls ranging from the President to Clint Eastwood. Now that the voters have spoken we're left to ponder the implications. Wall Street rendered an immediate opinion with its worst single day market loss of the year. I hope we can expect better than that for long-term results with talk of bipartisanship in the nation's capital, but then again maybe that's what Wall Street feared. Here in Alaska, voters appear to have dismantled the bipartisan coalition in the Alaska Senate.

Although Alaska is largely ignored during a presidential race, we can't forget that National policy has enormous consequences for our state. The Federal lease sale on the North Slope the day following the election is just one example. The current administration has chosen to remove from leasing most of the northern portion of the National Petroleum Reserve – Alaska, much of which has been under lease or even drilled under previous administrations. This is another of the continuing battles in Alaska between protection and preservation vs. exploration, development, and extraction – usually resulting in little middle ground. We'll have to stay tuned to see if bipartisanship can find any middle ground, but both sides can recognize how different Alaska would be today if the State lands on the North Slope were instead a Federal wildlife preserve rather than a series of oil fields.

AGS by its charter is not and cannot be an advocate for any politics. Our membership falls on both sides of the fence. But I can proudly say that from my perspective our membership comprises some of the most informed voters in the state, especially when it comes to natural resources. Let's strive to keep it that way.

- Greg



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ALASKA FOSSILS OF THE MONTH

***TROCHONEMELLA*, *SISKIYOU SPIRA*, *SPINYCHARYDIS*, *BERAUNIA*, *KIRKOSPIRA*, *CHULPACISPIRA*, *SPINULRICHOSPIRA*, *CHEENEETNUKIA*, AND *ODONTOMARIA*— A POTPOURI OF ALASKA 'S FANCY PALEOZOIC TROPICAL GASTROPODS**

by **Robert B. Blodgett (Anchorage, Alaska) and David M. Rohr (Dept. of Earth and Physical Sciences, Sul Ross State University, Alpine, Texas)**

This month's column is focused on a number of highly ornamented and morphologically varied gastropods which are characteristic of Alaska's early and middle Paleozoic (Ordovician-Devonian) fossils faunas. The faunas are found in both accreted terranes which characterize the greater portion of Alaska as we now know it, as well as the non-accretionary North American craton-bound rocks of east-central Alaska (bounded on the north by the Porcupine River and on the south by the Yukon River). These faunas are obviously tropical in character as evidenced by their highly unusual shell morphologies, including spines, nodes, gigantism, as well as by unusual uncoiled forms.

Alaska's Ordovician, Silurian, and Devonian gastropod faunas have in recent years proved to be most informative in terms of paleobiogeography (especially useful in terrane analysis and proving linkages between certain Alaskan terranes), regional biostratigraphy, as well in paleoecology. These faunas are quite diverse and have been the subject of numerous studies, which for the Ordovician include: Blodgett and others (1987, 1988a, 2002); Rohr (1988); Rohr and Blodgett (1985, 1988); Rohr and Gubanov (1997); Rohr and Potter (1987), Rohr and Yochelson (1999); and Rohr and others (1992, 2003). Silurian Alaskan gastropods have been studied by Kirk (1928), Rohr and Blodgett (2003a, b; 2008), Rohr and others (2003, 2008). Devonian Alaskan gastropod studies include: Blodgett (1992, 1993); Blodgett and Cook (2002); Blodgett and Frýda (1999); Blodgett and Gilbert (1992); Blodgett and Johnson (1992); Blodgett and Rohr (1999); Blodgett and others (1988b, 1990, 1992, 2002,

2003); Frýda and Blodgett (1998, 2001, 2004, 2008); and Frýda and others (2006).

Alaska's early and middle Paleozoic gastropods are especially notable for their highly spinose character. The presence of spines on many organisms has been interpreted to be protection from predators (Signor and Brett, 1984). The small size and number of spines on the Silurian genus *Spinicharybdis* and the Devonian genera *Spinulrichospira* and *Chlupacispira* (all illustrated below) suggest that they would offer limited protection.

In modern seas, as noted by Graus (1974) and Vermeij (1978), a higher degree of shell sculpturing in gastropods is associated with an increasing degree of warming of surface waters. Thus, tropical shells are more highly sculptured than subtropical, which are more sculptured in turn than warm temperate shells, etc. Highly ornamented shells are typical of gastropods from the warm, tropical waters of the Old World Realm during the Early and Middle Devonian (Blodgett and others, 1988b, 1990). In contrast, only a few ornamented shells are present in the Eastern Americas Realm, and no highly ornamented gastropods are found in the cool Malvinokaffric Realm settings. The latter two realms are thought to represent subtropical to warm temperate and cool water marine portions of the Devonian globe.

We illustrate below some of the more ornate and unusual shell morphologies found amongst Alaskan gastropod faunas of Ordovician, Silurian, and Devonian age.

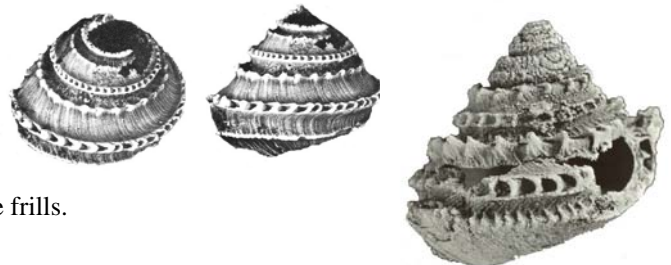
Ordovician genera

Trochonemella

Trochonemella reusingi Rohr, 1988. The Seward Peninsula contains the westernmost Ordovician rocks in North America. This Late Ordovician species is one of the most common and conspicuous fossils from that area, with its large size and scoop-like frills.

Siskiyouspira

Siskiyouspira sp. The Shublik Mountains of northern Alaska contain the northernmost exposures of Ordovician rocks in the United States. The above illustrated specimen of *Siskiyouspira* was found in latest Ordovician age strata of the uppermost part of the Nanook Limestone in the Shublik Mountains (Mt. Michelson quadrangle). *Siskiyouspira* is known only from Alaska and northern California.



Silurian genera

Spinicharybdis

Spinicharybdis krizi Rohr, Blodgett, and Frýda, 2008. This distinctive spiny gastropod is known only from the Late Silurian strata of the Heceta Limestone, western Prince of Wales Island, southeastern Alaska, the Canadian Arctic (Cornwallis Island) and, possibly Ontario. Even the smallest specimens have well developed spines. The genus was established by Rohr and Packard (1982), based on material from the late Silurian Barlow Inlet Formation, Cornwallis Island, Canadian Arctic Islands. The silicified specimens illustrated at right are from the Heceta Limestone near Twin Mountain on Prince of Wales Island.



Beraunia

Beraunia bohemica Perner, 1903. This unusual, uncoiled specimen is from the Upper Silurian Heceta Formation on Prince of Wales Island, southeastern Alaska. The species also occurs in the Upper Silurian of the Czech Republic but not in cratonal North America.



Kirkospira

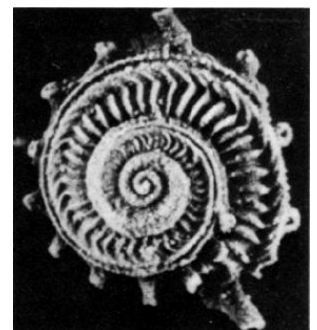
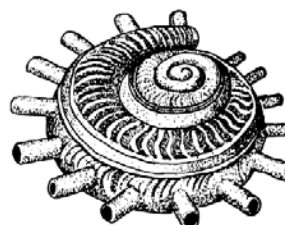
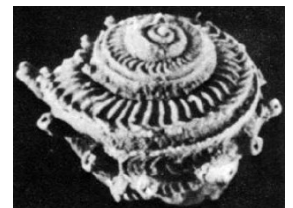
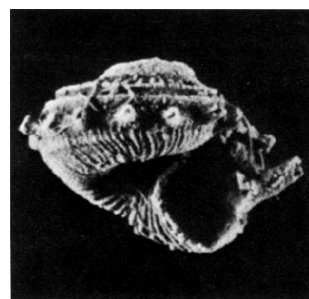
The genus *Kirkospira* was established by Rohr and Blodgett, 2003, with the type species being *Kirkospira glacialis* Rohr and Blodgett, 2003. This large gastropod is from the Upper Silurian part of the Willoughby Limestone of Glacier Bay, southeastern Alaska. F.E. Wright and Edwin Kirk of the U.S. Geological Survey collected a Silurian fauna, including gastropods, from Willoughby Island in southeastern Alaska during 1906 and 1917, respectively. *Kirkospira* was named in honor of Edwin Kirk.



Devonian genera

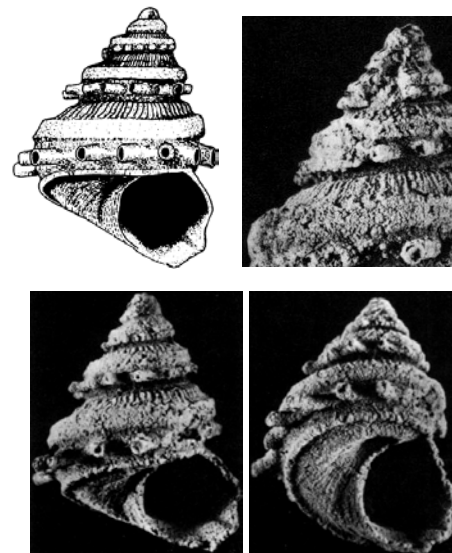
Chlupacispira

The genus *Chlupacispira* was established by Blodgett and Rohr (1989) from unnamed Emsian age strata exposed on the southern flank of Limestone Mountain, Medfra B-3 quadrangle, west-central Alaska. It is a minor element among the richly diverse, silicified gastropod fauna found at the same level, which has been further described and documented in Blodgett and other (1988b) and Frýda and Blodgett (1998, 2001, 2003, 2008). The illustrations at right represent the type species, *Chlupacispira spinosa* Blodgett and Rohr, 1989.



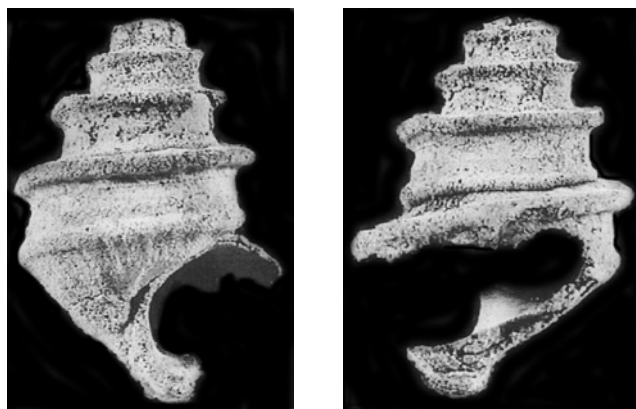
Spinulrichospira

The genus *Spinulrichospira* was established by Blodgett and Rohr (1989) from the upper part (Eifelian, or Early Middle Devonian age) of the Cheeneetnuk Limestone of the McGrath A-5 quadrangle, west-central Alaska. It is part of rich diverse, silicified fauna of gastropods, brachiopods, rugose and tabulate corals, and calcareous sponges. Other gastropods from this fauna were illustrated and described in Blodgett (1992, 1993), Blodgett and Johnson (1992), and Blodgett and Cook (2002). The illustrations at right represent the type species, *Spinulrichospira cheeneetnukensis* Blodgett and Rohr, 1989.



Cheeneetnukia

The genus *Cheeneetnukia* Blodgett and Cook (2002) is known only from the paleo-Pacific Ocean where it has been found at a number of localities in southern Alaska and at one locality in eastern Australia. The shell is characterized by an unusually large size (height often exceeding 120 mm) and its prominent spiral angulations. Occurrences in Alaska include the Eifelian age Cheeneetnuk Limestone of the McGrath A-5 quadrangle, west-central Alaska and the Wadleigh Limestone, Craig D-4 quadrangle, southeast Alaska. In all cases the Alaskan occurrences are represented by the type species, *Cheeneetnukia frydai* Blodgett and Cook, 2002 (shown at right).



Odontomaria

The highly unusual, uncoiled Middle Devonian gastropod genus *Odontomaria* is known from only a few localities within the tropical Old World Realm, notably in Germany, Alaska, Manitoba, and Michigan. This particular specimen is from Eifelian (Early Middle Devonian) strata in the Medfra quadrangle, equivalent in age and stratigraphic position with the Cheeneetnuk Limestone to the south in the McGrath quadrangle. The specimen illustrated at right was described in detail in Frýda and others (2006).



ACKNOWLEDGMENTS

Support for our studies of Alaska Paleozoic gastropods comes from many sources – too many to be summarized here in full. However, we wish to extend our profound gratitude to the Committee for Research and Exploration of the National Geographic Society, which has provided both of us with funding over the years to support our studies. In addition, we also wish to thank Dr. Arthur J. Boucot, Oregon State University, who supervised both of our dissertation studies, and whose own love for Paleozoic gastropods was a constant source of inspiration.

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September 2012	Thursday, Sept. 20 th – James R. Markello ExxonMobil Upstream Research Co, Houston, TX; A New Depositional & Sequence Stratigraphic Architecture for the Lisburne Wahoo Reservoir, North Slope Alaska
October 2012	Thursday, Oct. 18 th – Dr. John C Eichelberger, USGS; A 100 Year Perspective of the Katmai Volcano and Eruption
November 2012	Thursday, Nov. 15 th – Dr. Mark Myers, Vice Chancellor for Research, UAF; Geology Research and the Geophysical Institute at University of Alaska Fairbanks
December 2012	Thursday, Dec. 13 th – Ed Duncan, President – Great Bear Petroleum; Unconventional Oil Reservoirs on the North Slope of Alaska
January 2013	Thursday, Jan 17 th – Kristine Crossen, UAA; Tsui Lake Jokulhlaup and the 15 year surge of Bering Glacier, Alaska
February 2013	Thursday, Feb. 21 st – Josef Chmielowski, BP Exploration Alaska, Heavy Oil Team Leader, "Heavy Oil Development and Technologies, North Slope, Alaska"
March 2013	OPEN (March 14 th) – David Allard, Apache New Ventures Manager; Cook Inlet Exploration
April 2013	Thursday, April 18 th – Jana DaSilva Lage, Aeromatic, Manager and Geologist, "The Mighty Matanuska: An Aerial Mapping Study"
May 2013	OPEN (May 16 th)

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Greg Wilson

Alaska Geological Society, Inc.

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MEMBERSHIP INFORMATION

AGS annual memberships expire November 1. The annual membership fee is \$20/year. You may download a membership application from the AGS website and return it at a luncheon meeting, or mail it to the address above.

Contact membership coordinator Greg Wilson with changes or updates (e-mail: gregory.c.wilson@conocophillips.com; phone: 907-263-4748)

All AGS publications are now available for on-line purchase on our website. Check to see the complete catalogue.

<http://www.alaskageology.org/publications>

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Contact Keith Torrance (614) 264-4506 for advertising information.

Meeting Information

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Local Meetings:

American Water Resources Association—Alaska Section

<http://www.awra.org/state/alaska/index.html>

Alaska Geological Society

<http://www.alaskageology.org>

Lunch meetings are held monthly September through May in Anchorage. For more information, contact Jim Clough, 451-5030.

Alaska Miners Association

<http://www.alaskaminers.org/>

The Anchorage branch of the AMA holds weekly meetings at 7 AM every Friday at the Denny's on Northern Lights and Denali. They hold regular luncheon meetings in association with SME. For more information, contact the AMA office at 563-9229.

American Institute of Professional Geologists

<http://www.aipg.org>

AIPG holds regular quarterly evening Section meetings in Anchorage and Fairbanks. For more information contact Mark Lockwood, President, at Shannon & Wilson, Inc., in Fairbanks, 907-458-3142.

Chugach Gem & Mineral Society

<http://www.chugachgms.org>

CG&MS holds all meetings at the First United Methodist Church on 9th Avenue. Contact their hotline at 566-3403 for information on regular monthly business meetings, monthly potlucks, and guidebook sales, including the new Alaska Rockhound Guidebook.

Geophysical Society of Alaska

<http://gsa.seg.org/>

Luncheon meetings are held monthly September through May at the ConocoPhillips Tower. For more information, contact Daniel Yancey, Daniel.yancey@bp.com

Society of Petroleum Engineers

<http://alaska.spe.org/>

UAS Environmental Science Program

<http://www.uas.alaska.edu/envs>

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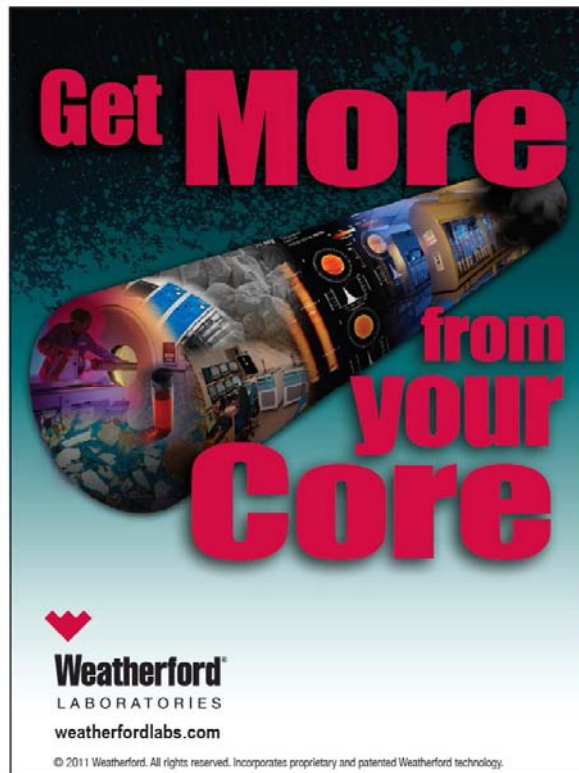
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