Rare 'Primitive Bugs' Neither Primitive Nor Rare

The very name 'Archaebacteria' ('ancient germs') betrays the evolutionary belief once attached to these micro-organisms. The first ones discovered a few years back had very unusual metabolisms. Some could produce methane, others lived in very hot, salty environments, for example. Speculation assumed factual proportions, and they were touted as rare, 'extremely primitive' types which had somehow survived from a time when life had first evolved. Popular science shows fuelled this belief; hot chemical springs generating the forerunners of the archaebacteria replaced the idea of a soupy primitive ocean in many imaginations.

Because they are prokaryotes (lack nuclei) they were originally regarded as being closer to other prokaryotes (bacteria and blue-green algae) in evolutionary terms than to the eukaryotes (creatures with nucleated cells — that is, all other plants and animals). However, genetic studies showed that they had more similarities with the eukaryotes, so the 'primitive ancestor' idea could not be sustained.

It now turns out that they are anything but rare. Archaebacteria have been found in significant numbers in the ocean — including cold waters quite different from the hot springs with which they are associated. For instance, it appears that they *'provide up to 30 per cent of the single-celled marine biomass'* in some Antarctic waters.[1]

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Only One Glaciation in Southwest Alberta

Glacial geology seems to be undergoing a paradigm shift. Multiple, huge ice sheets over much of North America no longer seem sustainable. Instead, the ice is believed to have been thin, especially along most of its margin. This is based on a number of indicators.[1]

Recently, new observations from around Edmonton, Alberta, strongly indicate that southwest Alberta was covered by only one ice sheet.[2] The basis for this radical new assessment is the lack of Canadian Shield igneous and metamorphic rocks in pre-glacial river valleys. Rocks from the Canadian Shield, the nearest source being northeastern Alberta, overlie the gravels of these pre-glacial valleys. These Canadian Shield rocks are believed to be from only the 'last' glaciation.

Are the researchers now firm believers in only one Pleistocene ice age? That apparently would be too much of a paradigm shift. They assume previous Pleistocene glaciations, of which there were supposedly many, terminated east of Edmonton. They feel that the main evidence for multiple glaciations comes from the American Midwest. The authors do admit that glacial interpretations automatically assume multiple glaciations:

> *'Glacial reconstructions commonly assume a multiple-glaciation hypothesis in all areas that contain a till cover.'*[3]

However, they must not realize that the glacial chronology in the American Midwest is also based on the multiple glaciation assumption and is questioned by many glacial geologists today.[4] One thin ice age is looking more reasonable with further research.

Over 1,000 fossil vertebrates have also been discovered in this pre-glacial gravel.[5,6] These vertebrates include woolly and Columbian mammoths, mastodon, horse, bison, caribou, deer, musk ox, camel, ground sloth, wolf, lion, and giant short-faced bear. These are typical ice age animals found over much of the Northern Hemisphere. A few small mammals are also found in the Edmonton area and farther south, including a beaver and a colony of prairie dogs. It is likely that these fossils represent animals migrating from Alaska and the Yukon Territory, which contain many ice age fossils, southeast through an ice-free corridor just east of the Rocky Mountains. An ice-free corridor during the ice age likely was caused by downslope foehn winds that are common today along the east slopes of the Rockies from northern Canada to New Mexico.

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