

# j28 Cambrian Laurentia < Sauk >

Ixion was there, fastened to the circumference of a wheel ceaselessly revolving; and Sisyphus, whose task was to roll a huge stone up to a hilltop, but when the steep was well-nigh gained, the rock, repulsed by some sudden force, rushed again headlong down to the plain. Again he toiled at it, while the sweat bathed all his weary limbs, but all to no effect.  
 —Thomas Bulfinch, *The Age of Fable*.<sup>1</sup>

The Cambrian Period was an evolutionary explosive time for life in the sea. In stark contrast, waves swashed and washed on the shores of land, everywhere lifeless.

Geologically it was a quiet time for Laurentia. An epeiric sea, the Sauk, drowned its then western area (**Figure j28.1**). Without mountains, the old-age landscape of the continent barely shoaled in the areas of what (referring to their present position in America) are now: the erosion surface that truncates the metamorphic Vishnu Formation schists, intruded by numerous dikes of Zoroaster granite, exposed in the inner gorge of Grand Canyon, Arizona; the Transcontinental Arch in the American platform; and, the Canadian Shield. Erosion of these areas supplied quartz sand to the coasts from where it would be blown inland only to be returned again by rivers. (A modern parallel is the trek in Namibia’s Atacama desert of sand grains that: are moved along the coast by waves that build a beach of them; are blown inland to accumulate as dunes that, in the absence of fixing vegetation, march inland to fall into Orange River of South Africa; and, are saltated as a river bed-load back to the coast.) The clay and dust sized products of weathering and abrasion were winnowed away to accumulate beyond the surf on the seafloor.

The International Subcommittee on Cambrian Stratigraphy has put together descriptions of one paleoterrane and eight paleocontinents that were separated by deep oceans during the Cambrian:<sup>2</sup>

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|-----------------------|------------------|------------------|
| AVALONIA paleoterrane | PALEOBALTICA     | LAURENTIA        |
| PALEOKAZAKHSTANIA     | NORTH PALEOCHINA | SOUTH PALEOCHINA |
| PALEOSIBERIA          | EASTERN GONDWANA | WESTERN GONDWANA |

**Figure j28.1** Generalized paleogeographic map of Laurentia during the end-Cambrian when the Sauk epeiric sea was at full flood.

600 million years ago—*Diverging* Avalonia, Paleobaltica, Laurentia, Paleozakhstania, Paleosiberia, North Paleochina, and South Paleochina, were fragmented Panotia. *Converging* to form Gondwana were Eastern Gondwana and Western Gondwana.

700 million years ago—*Diverging* Panotia, Eastern Gondwana, and Western Gondwana were fragments of an earlier supercontinent Rodinia.<sup>3</sup>

- Key:**  
 Emergent land (dark gray).  
 Epeiric sea (white at coast, increasing gray with depth).  
 Present day geographic references (broken lines).

