

## k29 The Canadian Shield < tectonic provinces >

It doesn't look much at first sight—and believe me—it gets worse. —Jack Vance, *Space Opera*.<sup>1</sup>

Black flies without number from six a.m. till noon. At eight o'clock the bull-dog flies came to mosquitoes assistance and made the horses' lives a burden to them until evening. There was a short respite, then the mosquitoes arrived to prevent any rest for the night. —Tyrrell.<sup>2</sup>

Reconnaissance geologic mapping of vast territories relies heavily on interpretation of lineaments in aerial-photographs, and of magnetic- and electrical-anomaly trends in geophysical maps, to extrapolate between outcrops and drilled sites.

In shields, areas distinctive in their overall geology are also found to be distinctive in the style and trend (axial-plane strike) of folds in their gneisses. Such areas are called *structural provinces* (synonym: *tectonic provinces*).<sup>3</sup> Each is understood to have been an area that was subjected to a culminating orogeny that left a distinctive imprint (metamorphic and structural) throughout, whereafter it stabilized as a craton.<sup>4</sup>

By the beginning of the 1960s, the entire (blackfly and mosquito ridden in the summer and snow covered in the winter) Canadian shield had been blocked out in maps into such areas (**Figure k29.1**).

The patterns of gneissic folding and granite emplacements in the structural provinces do not cross their boundaries. Unfortunately, the relative age of structural provinces to either side of a common boundary cannot be determined by the principle of cross-cutting relationships which in this case simply allows that the provinces may have different ages.<sup>5</sup> The famous former quandary of the relative ages of the Grenville and the Keewatin gneisses, (*recall* Topic k20) is a case in point. □

### Figure k29.1<sup>6</sup> Structural provinces of the Canadian shield as recognized in 1959.

Key: Ocean and lakes (pale gray). Phanerozoic cover (gray). Areas of Lower Proterozoic Animikie (Huronian) strata (black). Shield (white).

The areas (black) of the folded Lower Proterozoic comprise the northeastern exposure of what was later named the *Southern structural province* in the U.S.

Early in the 1960s, in the light of radiometric dating, adjustments were made to the structural province boundaries and litho-stratigraphic names were replaced by type-area geographic names. For example the *Keewatin province* was renamed the *Superior province* (see Figure k32.1, p. 645).

