Still Bay and Howiesons Poort sites (South Africa) are consistent with the risk hypothesis

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d’Errico et al.’s (1) conclusion that cultural differences between the Still Bay (SB) and the Howiesons Poort (HP) sites in South Africa (SA) are not accounted for by the risk hypothesis (2) is premature. The risk hypothesis is well-modeled by interaction between risk and mobility as a driver for artifact complexity measured by (number of technounits)/(number of subsistants) = α + βR + ε, where R = (length of growing season (GS)) × (number of moves per year) and GS is a proxy measure for resource risk (3). The model accounts for 97% of the variance in tool kit complexity in a worldwide sample of 20 hunter-gatherer groups and differentiates between hunter-gatherer groups with a logistic strategy (resources brought back to a central location) versus a foraging strategy (the whole group moves from one location to another) (4).

Although the model is not directly applicable to the SA data since we lack information on the mobility of the SB and HP groups, the coastal hunter-gatherer adaptations in the northwestern region of North America are analogous to the SB complex, the inland plateau adaptations are analogous to the HP complex, and the inland plateau, with a shorter growing season (ref. 3, table 2), has greater risk for resource procurement than the coastal region (5). Also, like the SA cultural sequences, the artifacts in the inland plateau are less complex than those used by coastal groups, and, like its SA counterpart, are said to contradict the risk hypothesis (5).

However, when we include mobility data for the North American hunter-gatherer groups (ref. 6, table 5.01), the interaction model correctly predicts that the coastal region should have more complex implements than the plateau region due to the coastal adaptations being more sedentary than the plateau adaptations (refs. 6, table 5.01, and 7). Similarly, the GS measure for SA would be longer for the coastal region due to the “trend toward higher humidity during the SB and generally dryer conditions during the HP” (ref. 1, p. 7872) coupled with a lower temperature for the HP in comparison with the SB (ref. 1, figure 3). Furthermore, the SB lithic technology was dependent on long apprenticeship and made use of high-fidelity copying (imitation), curated lithics, heat-treating and pressure flaking, finishing of bone projectile points, complex bead working, and use of nonlocal resources, all of which are consistent with a logistic adaptation. In contrast, the HP cultural sequence involved low-fidelity copying (emulation), lack of formal tools, use of local resources, less frequent use of heat-treating and pressure flaking, the use ofhafted tools that are easily repaired, and local bone and lithic traditions, all consistent with a foraging strategy.

This pattern suggests, consistent with the risk hypothesis, that the shift from the SB complex to the HP complex was driven by ecological changes leading to expansion into the interior, a move that favored a foraging adaptation with less complex tools due to more mobile HP groups and despite the interior region having greater resource procurement risk than the coastal region.