

**Intellectual Development in Adulthood: The Seattle Longitudinal Study.** *By* K. Warner Schaie. 1996. Cambridge: Cambridge University Press. Cased, £35.00. ISBN 0 521 43012 3.

In its very last word, Warner Schaie describes his book as an 'odyssey'. He is right. In the closing pages we see him, like Ulysses returning to the Ithaka from whence he had set out so many years earlier, describing his many unexpected intellectual adventures, surveying his home land afresh, musing on the

successes and failures of himself and his sailors and, the hero ever, contemplating yet further journeys. As Homer puts it, 'Many were the men whose minds he knew'.

The Seattle Longitudinal Study (SLS), perhaps better described as a host of parallel studies, is unique in its length and its breadth. Multiple cohorts of patients registered with a Seattle Health Maintenance Organization (HMO) have been followed up every seven years from 1956 to 1991, new individuals continually being added at each phase. Although the initial emphasis was on traditional measures of intellectual ability, later studies added new measures to address new problems. Schaie clearly states the major practical problem of cohort studies—'one cannot go backwards in a longitudinal study'—and then transcends that limitation to make it a strength. As he says:

One of the delights of a broadly conceived longitudinal study is that, far from becoming outdated and obsolete, it often provides the basis for new and exciting questions that could not have been formulated given the state of the art at the study's inception.

Perhaps the most exciting of the many results from the SLS is in disentangling the seemingly inextricably linked effects of cohort of birth, age at testing and time of testing. The cross-sectional study, that most popular of designs, studies people of different ages at a single time and is inherently limited by confounding all three effects. The SLS has evolved a design which unscrambles these three effects—the so-called 'Schaie's "most efficient design"'. One says 'evolved' because the methodology arose interactively in response to data collected at previous sweeps of the participants; it did not come fully formed into the world but itself developed and matured. That was probably fortunate, since one can conceive few grant giving bodies committing themselves to a 35-year prospective study (even though that was what was needed to answer the questions). But this also tells us something about the necessary conditions for landmark studies such as this—they come principally from the tenacity, determination and farsightedness of individuals with a dream and a purpose. And we are back to Odysseus again.

The book itself is a fine overview of a vast mass of work, reflected in the 123 cited works on which Schaie is an author. It clearly describes the many measures and the many samples, it updates previous analyses and it is exemplary in its careful consideration of the many potential threats to validity. At times it is a dry read, with too many undigested ANOVAs and structural models, or mere lists of significant and non-significant effects. Even if the author may be a Homeric hero he is not a Homer in style—except perhaps for occasional memories of the tedious 'Catalogue of Ships' from the *Iliad*. Although the pages of tables will interest only a few readers, the plentiful well-drawn figures are far more captivating, plotting the many dependent variables against age and birth cohort, imparting a real feel for the strengths of the data and raising a host of questions. Perhaps the graphs which most intrigued me were those showing cohort effects for those born between 1889 and 1966, which supported recent claims that indeed numeracy is lower in more recent generations but also emphasized concurrent *increases* in verbal meaning, spatial orientation and inductive reasoning, as well as minimal changes in word fluency over nearly eight decades. Also dramatic is Figure 6.7 plotting the sudden and maintained changes of home, job and occupation in the post-World War 2 generations. That of course raises the question of the causes of change. There are brave attempts to relate intellectual change to personality, to intellectual ability of spouse, to life-style, to health and illness, and to genetic factors. These chapters work less well, being a little perfunctory and with fewer illustrative figures. At the end there are a few comments on the modelling of individual growth trajectories and this must surely be a direction for further analysis; conceptually it would have been helped by some graphic representations.

This book will be a fundamental starting point for any scholar who wishes to understand the findings of one of the most important studies of intellectual ability across the adult life-span. Its ultimate lesson though is far broader: it is that methodology matters crucially, for refining methodology is actually understanding phenomena properly.