

ABSTRACT

A REDUCTION MODEL FOR VARIABILITY  
IN ACHEULIAN BIFACE MORPHOLOGY.

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This dissertation presents a model of biface reduction to account for variability in Acheulian biface morphology, variability which is well documented from over a century of excavations and discoveries. Historically the principle tool for organizing and analyzing this variability has been artifact typology, though more recently multivariate analysis of various shape variables has become popular. Explanations for the typological variability documented by these methods have been sought in the traditional areas of time-space systematics. Yet despite refined typologies and sophisticated multivariate analysis with large data sets, an explanation of biface variability has not been forthcoming. This result has led some to suggest that, to a large extent, morphological variability in bifaces is essentially random. An explanation is possible, however, when biface morphology is placed into the larger context of the reduction sequence. The data presented here suggest that the intensity of bifacial reduction within an assemblage in conjunction with the limits set by available raw materials can account for a large portion of variability in biface shape. This interpretation is based on data from biface assemblages in northwest Europe which show direct correlations between several aspects of shape and tip length. The latter is interpreted as a measure of the intensity with which a biface has been reduced. The traditional typological approach, on the other hand, cannot account for the observed relationship between shape and tip length. The traditional approach has always

assumed that shape and any measure of size are independent variables.