An Interdisciplinary Procedure for the Identification and Study of Archaeological Sites in Sedimentary Contexts

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Interdisciplinary work between pedologists and archaeologists in the Red River Valley of Minnesota and North Dakota during the last several years has resulted in an improved understanding of the location of archaeological sites, the means by which these sites have been buried by natural processes, and to some extent, the nature of the environmental context under which the sites were deposited (Michlovic, 1983; Foss et al., 1985).

Pedologic data on buried A-horizons (Ab), for instance, make it possible to offer reasonable hypotheses regarding possible locations of buried archaeological materials (Foss et al., 1985; Jorstad et al., 1986). Furthermore, the climatic conditions sometimes indicated by the formation of these buried soils carries interpretive significance for the archaeologist. For example, prehistoric foraging populations on the plains would have been drastically affected by climatic instability, especially by flooding events which would have forced relocation. The flooding events deposit sediments that cover the existing soil surface repeatedly and result in soil profiles containing several Ab-horizons.

As important as soil profile descriptions are for interpreting past environmental and climatic conditions, this report focuses on the use of profile analysis in locating buried land surfaces that may contain archaeological sites. Also included here is a suggestion for the convenient and efficient recovery of pedological and archaeological information in a single field operation.

Methods

In 1986, an archaeological survey was conducted in Cass County, ND to assess the density and most likely location of archaeological sites. This work was carried on in three phases. Phase 1 involved a pedestrian or surface survey of fields to locate sites in disturbed (plowed) contexts. Phase 2 consisted of the excavation of sites using traditional archaeological procedures of test excavation (e.g., Timpson et al., 1986). Phase 3 was the application of a coring technique in conjunction with the microscopic examination of core samples. The purpose of Phase 3 work was to identify buried land surfaces (Ab-horizons) and to determine whether the microscopic debris created by the manufacture of prehistoric stone tools was present in core samples, thus indicating a human occupation. This procedure follows the recommendation of Fladmark (1982). One of the significant features of Phase 3 work was that the procedure involved close cooperation between pedologists and archaeologists. Indeed, the techniques of coring for pedologic analysis were used for the recovery of archaeological material. The unique aspect of Phase 3 work was using a soil-geomorphic ap-

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