REPORT ON POLLEN SAMPLES

OF THE DEH LURAN PLAIN

James Schoenwetter
Palynology Laboratory
Department of Anthropology
Arizona State University
December, 1969

This report does not constitute a publication. It has been prepared for the dissemination of preliminary results upon which future investigations may be based. Permission to quote this material should be obtained from the author.

In the fall of 1969 a suite of nine sediment samples from the Deh Luran Plain was submitted to the Palynological Laboratory of Arizona State University. Five of the samples had been collected from archaeological contexts, the other four were removed from modern associations of types archaeologically. The objectives of this research were:

(a) to determine if pollen could be extracted in sufficient quantity for reliable pollen analysis,

(b) to determine whether some of the archaeological associations were more likely to yield pollen than others

(c) to determine the quality of preservation of pollen in these samples.

It should be stressed that pollen analysis was not considered nor attempted. The sample series was far too small for such work, and I have not developed the skills or reference materials for proper identification of pollen types from this area.

The extraction technique utilized is that proposed by Mehringer (1967:137) in Pleistocene Studies in Southern Nevada (Nevada State Museum Anthropological Papers No. 13, edited by H. M. Wormington and D. Ellis). Acetolysis was not employed, so as to determine the natural state of pollen corrosion in these sediments. A drop of the matrix remaining after the extraction process was placed upon a

microscope slide, fucson stain was added, glycerol was used as a mounting medium, and an area of 2 x 22 mm was observed microscopically. An estimate of the number of pollen grains occurring in the 22 x 22 mm area of the cover slip was then made.

The pollen observed was often crushed and occasionally fragmented, but not particularly corroded or eroded. Preservation of exines is undoubtedly poorer in these terrestrial deposits than in sub-aquatic and aquatic environments of deposition, but identification should be possible for at least 85% of the pollen observed. I have observed pollen from terrestial deposits in the desert and steppe lands of Mexico and the United States that was far more poorly preserved.

Table I provides details of the results, and illustrates that the yield of pollen from the ancient sediments is not sufficient for profitable pollen analysis under the extraction technique utilized. It would appear, however, that certain modifications in extraction technique would provide pollen in the needed quantity, and this could be worked out experimentally in any reasonable well-equipped pollen laboratory. I would suggest that extraction proceed on the basis of flotation techniques that concentrate the polliniferous fraction of larger sediment samples (75-150 c.c. volume) and that acetolysis be employed. I would guess that 50-75 per cent of the archaeological samples submitted to the laboratory could prove sufficiently polliniferous for analysis. Samples submitted should be on the order of 250 cc volume (about ½ cup) or somewhat larger. This would allow a second analysis of the same

sample if desired.

It would appear that the more ancient the deposit, the less pollen contained per unit volume. This generalization may be an artifact of the small number of samples, and should be taken seriously only insofar as it may encourage the collection of greater numbers of samples from the more ancient deposits. No major distinctions in pollen density are noted amongst the different sediment types. This would indicate that one sort of archaeological context has as high probability of yielding an analyzable pollen spectrum as another. It is particularly encouraging to note that a sample from an ash layer yielded pollen, for such sediments may also yield sufficient charcoal for radiocarbon dating of the pollen spectrum.

Sample No.	Provenience	Estimated Grains/ Slide	Comments
DLP 1	Sandy clay in sand and gravel deposits; culturally sterile	<10	Highly inorganic matrix, leaving crystals on slide. Organic detritu with cells walls observed but no po seen.
DLP 2	Clay immediately above sterile; pre-ceramic agricultural.	<10	Matrix a mass of organic detritus without cell walls; no pollen obser Could be much improved by acetolysi probably still not adequate for ana
DLP 7	Sediment immediately above plastered floor.	35	Matrix mostly wood and other plant tissues; pollen could be concentrat by acetolysis. Compositae and Cera pollen most common.
DLP 12	Ash layer immediately above gravel plaster floor. Just prior to Sabz phase.	75	Matrix like DLP 7; worth analyzing after acetolysis. Chenopodiaceae- amarath and Gramineae pollen most c
DLP 16	Cowyard of 19th century fort	>2000	Matrix no problem. 10-15 pollen ty observed in scan of 50 grains.
DLP 17	Irrigated modern cereal field	>2000	Matrix like DLP 2 but polliniferous DLP 16.
DLP 18	Modern domestic courtyard midden in village	750	Matrix like DLP 7, DLP 12. Thin-ex grains (e.g. Cerallia, Gramineae) show tendency to corrode.
DLP 19	Floor of modern ruined house in village	1500	Matrix like DLP 2, DLP 17 but somew more plant cell tissue. Excellentl preserved Cerallia pollen.
DLP 20	Modern street surface in village	>2000	Like DLP 16.

TABLE 1