

October 13, 1969

Mr. Paul Fish
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Dear Paul:

This letter will serve as a documented personal communication regarding the pollen study of samples from N:4:6.

Analysis of the surface pollen sample yielded an adjusted AP frequency (see Schoenwetter and Eddy, 1968:69-72) of 21.5% (N=259) and 15.2% (N=100) for replicate counts. These figures are rather lower than expected. Surface records from local of similar vegetation pattern (savanna) on the Colorado Plateau indicate that 95% of the population of such samples yield adjusted AP values between 28.5 and 64.5 per cent. Further, 66.6% of the population of surface samples from tree-less vegetation patterns within 3 kilometers of trees yield adjusted AP values between 28.1 and 40.1 per cent. The fact that the surface sample is not palynologically like surface samples from the Colorado Plateau leads to the conclusion that the principle of uniformity is not applicable in this case, and we should not expect that the fossil pollen records would be in conformity at this locality with fossil records from the Colorado Plateau.

This conclusion is, indeed, borne out by analysis of fossil pollen records from N:4:6. The date of occupation of the site is established by ceramic analysis and a tree-ring date as lying between 1175 and 1225 A.D. The existence of the 1181v tree-ring date established that the site could not have been used much before this time, as the evidence is clear for a relatively short occupation. Pollen records of the 1175-1225 horizon from the Colorado Plateau are available from the Chuska Valley (Schoenwetter, 1967), from the Little Colorado area (Schoenwetter, 1962) and from the district near Heber, Arizona (Schoenwetter, in Wilson, 1969). These data indicate that adjusted AP values between 22.4 and 55.0% are statistically "normal" for the period between 1175 and 1210 A.D., with values above 55.0% normal for the period between 1210 and 1250 A.D. (See Schoenwetter and Dittert 1968:46). The adjusted AP value for the sample from Room 2 at N:4:6 is 23.0% (N=100), that from Room 3 is 19.0% (N=200), and those from the trash deposit

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are 3.0% (N=100) and 12.0% (N=100).

It would thus appear that the Colorado Plateau pollen chronology is not applicable at N:4:6, so the palynological records obtained are not valuable for dating of the site. Nor are we justified in assuming that the sequence of environmental events recognized on the Colorado Plateau through the pollen chronology can be considered as occurring in the Perkinsville district. It may be true that such a sequence did indeed occur, but present evidence argues that we should expect that if the same sequence of environmental events occurred in the Perkinsville district as occurred in districts of the Colorado Plateau, it was expressed differentially.

This does not mean that the pollen records yield no information of archaeological value. On the one hand, these records are informative regarding the character of local vegetation at the time of occupancy; on the other hand they are informative as regards economic flora. Judging by the adjusted AP value of the fossil records from rooms 2 and 3 and those of the surface sample, the character of vegetation at the time of occupancy was essentially similar to that present today at the locality. However, the most prevalent form of arboreal pollen in the surface sample is that attributable to juniper, while the most prevalent form in the fossil pollen record is attributable to pinon. Thus it would appear that though the structure of the local vegetation pattern was similar to that now present (savanna), it is likely to have had substantially greater pinon component at the time of occupancy than the present savanna.

The adjusted AP values of the samples from the trash midden are statistically distinct from those of the room floors and that of the surface sample. Ostensibly, they represent the existence of a different environmental condition at the time of deposition. Since the period of occupancy of the site is known to be limited, it seems improbable that the trash midden sediments were deposited at a different time than the room floor sediments. There are three possible interpretations of these data:

- (a) neither the room floor samples nor the trash midden samples reflect regional vegetation patterns.
- (b) one set of samples reflects regional vegetation while the other reflects very localized vegetation
- (c) either or both sets of samples reflect the impact of cultural behavior on regional pollen rain.

There is not one scrap of direct evidence that can be brought to bear in resolving this question. The only direct evidence would be comparison of these samples with a significantly large series of samples of the same horizon of deposition from a variety of

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culturally and non-culturally influenced sediments, or comparison with a significantly large series of surface samples. These are unavailable. Comparison of these data with that from the Colorado Plateau is invidious, as we can demonstrate. However, as I must make some guess, and I can only do so on the basis of prior experience with pollen records from that and other regions, I have been forced to consider information I realize should not be logically involved with the problem.

In my experience, pollen records are more consistently recoverable from house floors than from trash deposits, indicating that to some degree trash deposits are less likely to preserve pollen rains. Further, the trash midden environment is edaphically specialized and likely to support a specialized flora while the floor sediment environment is not likely to support any flora at all. Comparison of temporally equivalent floor and trash samples from Oaxaca, however, has not revealed significant distinctions, and such comparisons carried out at Sapawe and Picuris have also revealed no significant distinctions. My first suspicion, therefore, is that the samples from the midden do not, indeed, represent the same horizon of deposition as the floor samples. If this suspicion must be allayed by the archaeological record, I judge it most likely that the floor samples reflect regional pollen rain and regional vegetation while those of the trash midden reflect a localized vegetation pattern perhaps induced as a response to cultural activity at the trash midden locus.

The floor sample of room 2, and the two trash midden samples contain pollen of Zea and Cleome (Rocky Mountain bee plant). Both of these are recognized as ethnobotanic pollen types (Schoenwetter, 1962) ~~to~~. The floor sample from Room 3 contains both of these and also pollen of Platyopuntia (prickly pear), Malvaceae (probably globe mallow), Polygonum (smartweed), and Nyctaginaceae (four o'clock). The prickly pear and globe mallow pollen are to recognized as ethnobotanic types in this context, for they are insect pollinated types that are not normally observed outside of culturally influenced deposits. The other two are also rare pollen types under conditions of natural deposition, so may be ethnobotanic types in this context. It would appear that culture patterns involving the handling of plants and plant parts were distinct in Rooms 2 and 3. In the former room we have evidence from the ethnobotanic pollen record of the handling of food plants, or one food plant (Zea) and one which is used for manufacture of black pigment (Cleome). In the latter room more kinds of ethnobotanic plants, serving various purposes, were handled. On the basis of this evidence alone Room 2 could be diagnosed as a habitation room, while Room 3 would be diagnosed as

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either a storage or a ceremonial room (Hill and Healy, 1968).

Sincerely,

James S. Schoenwetter
Assistant Professor

JS/mfg