

Macro floral and Pollen at Evanston

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Vitis (Grape)

Vitis (grape) is a native of Asia Minor and North America that has been cultivated for wine and table grapes.

The Egyptians are believed to have first cultivated grapes 6000 years ago. The majority of wines and table grapes are made from varieties of the European Vitis vinifera.

American jelly, grape juice, and northeastern wines are made from Concord grapes, a variety of the American Vitis labrusca (McGee 1984:187).

Many other species of Vitis are native to the United States and produce edible fruit which can be purple, blue, black, or amber. Wild grapes are often

too tart to be eaten raw, but are used in jams, jellies, and juices (Angell 1981:156). Generally, wild grapes need more sweetening than cultivated grapes and contain plenty of pectin before fully ripe (Peterson 1977:198). Young grape leaves can be cooked as greens or used to wrap meat for baking. Internally and externally, leaves were used to cure snake bites and disorders of the internal organs. "In various parts of the world, including the West in pioneer times, grape leaves soaked in water were used as a poultice for wounds" (Kirk 1975:263). Wild grapes are found throughout the Southwest and Northeast United States growing in thickets and edges of woods (Medsger 1966:53-59).



Weeds

Muenschler (1987:3) describes weeds as "those plants that grow where they are not wanted. Whether a plant of a given species is considered a weed depends not only on its characteristics and habitats, but also on its relative position with reference to other plants and man." Weeds often are able to thrive in diverse and adverse circumstances. They commonly are found in



disturbed areas or in places undesirable to other plants.

Many weed species produce enormous quantities of seeds, and these seeds often are widely dispersed.

Other weed species are capable of reproducing vegetatively. These factors combine to produce a plant that is very successful in competition with other plant species. The word "weed" is assigned here to those plants that most likely were not eaten by the historic occupants of 48UT1749.



Amaranthus (Amaranth, Pigweed)

The species of Amaranthus (amaranth, pigweed) are herbaceous annuals found in moist to dry ground in a variety of habitats. Grain amaranths are noted to be important food crops in high elevations of tropical America and Asia (Weber 1976:73). In these countries, the seeds are popped or ground into a meal and baked into cakes. Amaranthus also was an important food plant for native groups in the United States, providing greens and seeds. The plant also was used medicinally. Some species are cultivated commercially, such as A. cruentus (prince's feather), A. tricolor (Joseph's coat), and A. caudatus (love lies bleeding). Most species of Amaranthus are considered weeds of late summer, and are found in fields, waste places, and disturbed ground (Ambler et al. 1994:165; Kirk 1975:63; Muenscher 1987:192-195; Weber 1976:73).

Asteraceae (Sunflower Family)

The Asteraceae (sunflower) family is a very large family of over 20,000 species worldwide. Some species such as Lactuca (lettuce) and Helianthus (sunflower) provide food, while others are popular ornamentals. Most species are weedy, herbaceous plants found in a variety of habitats, some of which include cultivated fields, meadows, waste places, old fields, pastures, gardens, and lawns (Hickey and King 1981:418; Muenscher 1987:422; Niering and Olmstead 1979:354). Tragopogon (salsify, goatsbeard) are biennial or perennial plants introduced from Europe. These plants have yellow or purple flowers, milky sap, and fleshy taproots. T. porrifolius (vegetable-oyster, oyster-plant, noonplant, Jerusalem star) was grown in gardens for its edible root. Tragopogon are widespread in disturbed ground including old meadows, fields, roadsides, vacant lots, waste places, and backyards (Fernald 1950:1549; Martin 1972:151; Muenscher 1987:501-502).

Poaceae (Grass Family)

The Poaceae (grass) family is one of the most widely distributed families in the world. Grasses are annual or perennial herbs with fibrous roots, sometimes woody stems, forming loose to dense tufts or mats. The grass family is probably of greater economic importance than any other family. The grass family provides food for man, fodder for domestic animals, and thatching. Grasses also are used in lawns and other turfed areas, grown for ornament in gardens, and dried for floral decorations. Grasses are found in a variety of habitats, sometimes becoming troublesome weeds (Hickey and King 1981:436-437).

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DISCUSSION

Three sediment samples from Evanston Chinatown (48UT1749) excavations were examined for pollen, starches, parasites, and protein residues. Sample 283 from an outhouse pit dating to the 1920s also was floated to recover macrofloral remains.

Samples 170 and 10 were recovered from a bone bed (faunal discard area) located outside a restaurant (Table 1). The bone in this area represents final processing of meat. The occupants appeared to have discarded trash out the window into the street.

The pollen record for sample 170 reflects local vegetation dominated by Artemisia (Figure 1, Table 2). A moderate quantity of High-spine Asteraceae pollen probably reflects rabbitbrush in the local vegetation. Small quantities of Alnus and Betula pollen represent alder and birch growing in a riparian zone, probably along a nearby drainage. Small quantities of Juniperus and Pinus pollen probably reflects juniper and pine trees growing on outcrops or other elevated areas.



Small quantities of Low-spine Asteraceae and Chenopodium pollen probably represent weedy plants such as ragweed and goosefoot growing in Evanston. Small quantities of Phlox-type, Poaceae, and Rhus-type pollen probably represent the presence of phlox, grass, and sumac or squawbush shrubs growing in Evanston. Ephedra pollen is noted to travel long distances on the wind, and probably represents the presence of Mormon tea within the regional vegetation surrounding Evanston. A single starch granule was recovered that looks like those produced by grass seeds and probably represents the deterioration of grass seeds in this area. There is no evidence in the pollen record of specific activities involving plants or food processing. No parasite eggs were noted during pollen analysis, nor during the scan of the rest of the microscope slide. Absence of parasite eggs might reflect an absence of parasites in the population living in this area, or an absence of human fecal material in this area, which is necessary to transport parasite eggs into the sediment.

Sample 10 yielded a pollen record very similar to that of sample 170. Differences include the presence of a large pollen grain from the Liliaceae (lily) family, Lonicera-type (honeysuckle), and Polygonum pollen. The Polygonum pollen probably represents a weedy plant growing in this area. Lonicera represents a shrub that might occur as part of the native vegetation. Lonicera pollen is not distinguished at the species level, which is necessary to differentiate between native honeysuckle and cultivated honeysuckle likely to have been planted in town. No particular evidence of landscaping or food was noted in the pollen sample.

Samples 170 and 10 were tested for possible protein residues using the antisera listed in Table 3. Sample 170 yielded positive protein residue results to goat and horse antisera (Table 4), while sample 10 tested positive to bovine and goat antisera. These positive results may represent the presence of dung on the street from cows, goats and/or horses, since proteins are present in all body fluids and tissues, including urine and feces. Immunological studies on coprolites and modern animal dung have shown that CIEP will identify what animal produced the feces (Newman *et al.* 1993). Alternatively, it is possible that these positive to bovine, goat, and possibly horse represent final butchering remains discarded in this area.

Feature 6 is an outhouse pit dating to the 1920s located outside of a house. Sample 283 was recovered from sediment beneath a shoe sole. The pollen record from this sample yielded abundant evidence of foods. Cerealia pollen represents consumption or discard of commercial flour made from one of the cereal grains,

possibly wheat. Daucus (carrot, wild carrot) pollen might represent consumption or discard of carrot tops that were in flower. More likely, this pollen represents weedy wild carrot or Queen Anne's lace. Recovery of Lamiaceae pollen is consistent with use of a member of the mint family for flavoring or tea. Ribes pollen suggests consumption of currants, possibly raw as berries, as currant jelly, or cooked in a pie. Fragaria pollen represents consumption of strawberries, which might have been eaten raw or cooked. Prunus-type pollen can represent one or more of a variety of cultivated fruits, such as cherry, plum, peach, apricot, and nectarine. Many of these might retain pollen on the fruit to be consumed when the fruit was eaten. Vitis pollen indicates the consumption of grapes or possibly wine. Recovery of Sporormiella dung fungal spores from these samples indicates that grazing animals probably were present in the area or that manure was put into the outhouse pit. These fungal spores represent a dung fungus that becomes more abundant in Historic Period sediments following the historic introduction of grazing animals. Its increasing presence in historic samples has been noted in numerous palynological studies (Davis 1987). Sporormiella fungal spores are not confined to the dung of introduced grazers, but also occur in dung from moose, wild sheep, deer, elk, caribou, and rabbits. The increase of Sporormiella spores in historic sediments may relate to changing land use patterns and increase in the length of time that herds of animals occupy any given area.

The macrofloral record from sample 28 yielded an abundance of uncharred seeds and seed fragments that indicate consumption of a variety of fruits and vegetables. Fruits are represented by Crataegus, Ficus, Fragaria, Rubus, and Vitis seeds and seed fragments (Tables 5 and 6). The presence of a Cucurbita seed fragment, an Olea europaea pit, and members of the Solanaceae family including Capsicum, Lycopersicon esculentum, and possible Solanum melongena seeds and seed fragments represent vegetable resources that appear to have been eaten. Tragopogon porrifolius is noted to have been grown in gardens for its edible root; however, Tragopogon species also are widespread weeds in disturbed areas. The presence of an uncharred Tragopogon seed in sample 283 most likely represents presence of salsify as a local weed. Uncharred Amaranthus, Asteraceae, and Poaceae seeds also represent local weeds and grasses. Pieces of Pinus charcoal and unidentifiable vitrified charcoal most likely represent burned wood present in ashes cleaned out of a stove or fireplace and deposited in the privy. Uncharred eggshell and bone, including several fish vertebrae, suggest that eggs and fish also were eaten. Other trash remains include coal and flat pieces of metal.

Protein residue analysis of sample 283 yielded positive results to human, trout, and mouse antisera. A positive result to human is expected since human proteins are present in fecal material. A positive result to trout antiserum may reflect discard/consumption of salmon, trout, or whitefish. Discard/consumption of fish remains is reflected in the macrofloral record by the presence of fish bone. A positive result to mouse antiserum most likely represents contamination from local rodents.

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SUMMARY AND CONCLUSIONS

Pollen, starch granule, parasite, protein residue, and macrofloral analyses were performed on three sediment samples from Evanston Chinatown (site 48UT1749). Pollen analysis indicates that the local vegetation was very similar to that of the surrounding area today and was dominated by sagebrush. The pollen record yielded no evidence of plant processing in the bone concentration area sampled. No evidence of parasite eggs was noted in either of the bone bed samples. Protein residue analysis of the bone bed sediments yielded positive

results to goat, horse, and bovine antisera. The positive result to horse most likely reflects the presence of horse dung on the street outside the restaurant, while the positive result to bovine antiserum most likely represents final butchering remains discarded in this area. Positive results to goat antiserum in both samples may reflect either the presence of goat fecal material in the street or butchering remains discarded.

Pollen and starch analysis of sample 283 from the privy deposits yielded evidence suggesting that commercial flour, a member of the mint family, currants, strawberries, a member of the Prunus group, and grape were consumed. No parasite eggs were noted. The macrofloral record from the privy contained an abundance of uncharred seeds and seed fragments indicating that several types of fruits and vegetables were eaten, including squash/pumpkin, fig, strawberry, olive, a member or members of the Rubus group such as raspberry and/or blackberry, grape, peppers, tomatoes, possibly hawthorn berries, and possibly eggplant. Fish bone and eggshell also suggests that eggs and fish were eaten. Protein residue analysis of sample 283 yielded positive results to human antiserum, reflecting the human fecal material present, and to trout antiserum, reflecting fish remains discarded in the privy or possibly fish proteins present in the fecal material due to consumption of fish. A positive result to mouse antiserum most likely represents local rodent activity in this area.

TABLE 1

PROVENIENCE DATA FOR SAMPLES FROM SITE 48UT1749

Sample No.	Feature No.	Description/ Provenience	Analysis
170		2.115-2.26S/11.83-12.0W; Sediment from bone bed in street outside restaurant	Pollen/Starch/Parasite Protein Residue
10		2.37-2.47S/10.43-10.56W; Sediment from bone bed in street outside restaurant	Pollen/Starch/Parasite Protein Residue
283	6	5.91-6.19S/14.80-15.07W; Sediment from beneath shoe sole in outhouse pit dating to the 1920s	Pollen/Starch/Parasite Protein Residue Float

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