Paul Fejos

The accompanying paper constitutes a part of the formal literature distributed at the recent Valsequillo Field Conference held at the time of the Geologic Society of America meetings in Mexico City, November, 1968. In it are briefly summarized the archaeological evidence from the Valsequillo Region, and the situation concerning the radiocarbon dating of the Valsequillo materials at this time and in my opinion. No material should be quoted without permission of the author.

Cynthia Irwin-Williams

1. Summary of Archaeological Evidence from the Valsequillo Region, Puebla, Mexico

C. Irwin-Williams

2. Comments Concerning Radiocarbon Dates from the Valsequillo Region and Their Relation to the Early Archaeological Localities.

C. Irwin-Williams

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Summary of Archaeological Evidence from the Valsequillo Region, Puebla, Mexico

Archaeological investigations in the Valsequillo Region, Puebla, Mexico were carried out from 1962-66 by C. Irwin-Williams representing Harvard University, and Juan Armenta Camacho representing the University of Puebla. These investigations yielded evidence at five localities of the direct association of man-made artifacts with an extensive late Pleistocene fauna including mammoth, mastodon, horse, camel, four-horned antelope, etc. Four of the archaeological localities occurred within the thirty meter thick series of alluvial deposits known as the Valsequillo Gravels near the town of Colonia Buena Vista de Tetela on the north shore of the Valsequillo Reservoir. Their relative stratigraphic position is as follows:

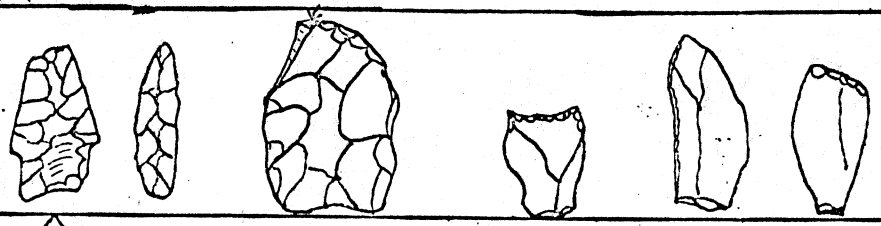
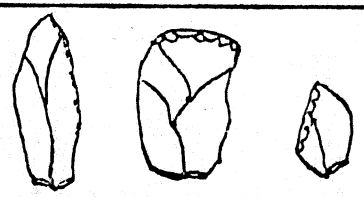
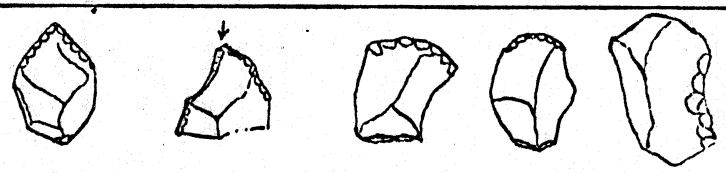
Hueyatlaco - 10 meters below the latest Valsequillo deposit.

Tecacaxco

El Mirador

El Horno - at the base of the Valsequillo Gravels.

A fifth archaeological locality was discovered in the correlative deposits of the tributary Barranca Caulapan about twelve meters above the base of the Valsequillo deposit.

RELATIVE STRATIG. POSITION	TYPOLOGY	TECHNOLOGY
UPPER Unit C		Well made bifacially worked artifacts: projectile points, knives; percussion and pressure flaking; burins, scrapers, wedges, knives on flakes and blades. Prepared striking platform.
HUEYATLACO Unit E		
LOWER HUEYATLACO Unit I		Edge retouched artifacts: projectile points, scrapers made on blades and flakes with prepared striking platform.
TECACAXCO		Edge retouched artifacts: scrapers, knives. Blades and flakes with prepared striking platform.
EL MIRADOR		Single edge retouched projectile point on blade with prepared striking platform.
EL HORNO		Edge retouched flake tools: projectile points? scrapers, burins; use of prepared striking platform; no blades.

CAULAPAN

Single edge retouched scraper on flake.

FIGURE 1. SYNOPSIS OF TECHNOLOGY AND TYPOLOGY OF ARTIFACTS FROM EARLY SITES IN THE VALSEQUILLO REGION

The archaeological evidence from these localities may be summarized as follows: (See Fig. 1).*

Hueyatlaco yielded stratigraphic evidence of three periods of occupation, each being represented by artifacts and vertebrate remains indicative of hunting activities. Artifacts of the two younger periods, as determined by Irwin-Williams, are similar and can be distinguished from those of the older period at Hueyatlaco, as well as assemblages at all the lower Valsequillo sites, by the presence of very well-made bifacial stone tools--namely projectile points and knives. The hunters of these younger periods also used scrapers and perforators, and they knew how to make blades (usually prismatic flakes that were struck from specially prepared stone cores). Artifacts of the older period at Hueyatlaco, which in places underlies an unconformity and more than a meter of archaeologically-sterile deposits, lack bifacial tools. Like artifacts from the lower Valsequillo sites, they evidently express a different, less sophisticated method of working stone, which resulted in projectile points made on well executed blades and flakes. By applying percussion and pressure, these blades and flakes were shaped into useful tools by simple edge trimming. In short, these artifacts are significantly distinct from the bifacial tools found in the younger layers of Hueyatlaco.

The sites lower than Hueyatlaco yielded archaeological material technologically similar to the older part of Hueyatlaco material,

*For more detailed discussion of the Hueyatlaco Locality, see the accompanying VII INQUA paper of Irwin-Williams.

but they are nonetheless informative. Tecacaxco, in addition to some remains of the extinct fauna, produced several flakes and blades, some retouched to make scrapers. A projectile point from El Mirador resembles those from the lower part of Hueyatlaco and was made on an edge-trimmed blade that retains a prepared striking platform. El Horno contained the remains of a butchered mastodon associated with scrapers, perforators, and a possible projectile point, which together express the kind of technology represented by the other non-bifacial tool assemblages at Valsequillo, except that no blades were found.

Comments concerning Radiocarbon Dates from the Valsequillo Region and Their Relation to the Early Archaeological Localities.

The archaeological data recovered in the Valsequillo Region and the character of the associated fauna indicated that this might well be some of the earliest evidence of man in the New World, and might shed valuable light on the important and controversial question of the antiquity of man in this hemisphere. Accordingly it was highly desirable to obtain exact chronological information on the Valsequillo deposits. Unfortunately local conditions in the Tetela Peninsula region did not permit preservation of materials amenable to radiocarbon dating. Therefore, the exact chronology of the four principle sites depends on lithologic stratigraphic and/or tephrochronologic correlation to dated deposits elsewhere in the Valsequillo region. These ancillary investigations are discussed in the accompanying literature by Harold E. Malde and Virginia Steen-MacIntyre. In addition to these data, radiocarbon dates were obtained from the sequence of Valsequillo deposits at the Barranca Caulapan in which archaeological evidence had also been recovered.

Irwin-Williams comments on the radiocarbon data (see accompanying lists of dates) and their relation to the archaeological situation may be outlined as follows:

1. Dates on shells from the Barranca Caulapan (W-1974, W-1896, W-1895, W-1975, W-1898, W-2189).

Sample W-1895 yielded a date of 21, 850 $\pm$ 850 B.P. on shells recovered in association with a single man-made flake scraper. Other samples collected at the base of and near the top of the Caulapan section indicate that the Valsequillo deposition here began sometime before 35,000 years ago and ended about 9,000 years ago. Tentative geologic correlation indicated that the earliest archaeological site in the Tetela region (El Horno) may be about the same age as the basal deposits at Caulapan. The date collected near the top of the deposit provides a terminus ante quem for all of the Valsequillo archaeology.

Commentary: Although shell dates were long considered "suspect", recent experimental data indicate that a maximum error of no more than ca.3,000 years is probable. The "modern" date on living snails (W-1974) indicates that present conditions at least do not produce significant deviation. In any case the indications of man's presence in the Valsequillo region significantly before 12,000 years ago are not altered by a possible error of the magnitude of 3,000 years.

The single flake scraper from Caulapan is of such a simple type as to have essentially no diagnostic value, and accordingly its

association with this early date (21,850 $\pm$ 850 B.P.) is not incompatible with other archaeological data either from the Puebla area or elsewhere. This association constitutes the only available direct evidence on the antiquity of man in the Valsequillo region. Even so it is a startling result since it indicates man's occupancy of the New World may date back nearly twice as far as had been previously believed. If the geologic correlations of the El Horno site near Tetela with basal deposits at Caulapan are confirmed man's arrival in this hemisphere may have occurred over 35,000 years ago. A date of about 9,000 B.P. as a terminus ante quem for Valsequillo archaeology is entirely compatible with the evidence of the latest archaeological levels (Units C and E) at the latest site, Hueyatlaco. The typology of the latter is indeed very similar (though not identical) to that of the Ajuereado Complex defined by R.S. MacNeish in the nearby Tehuacan valley of Puebla and dated about 9-10,000 B.P. In view of this similarity, and more general information concerning rates of typologic change, it is probable that the latest occupations at Hueyatlaco do not predate the Ajuereado Complex by a large span of time (e.g. more than 12,000 years), and they might actually be contemporary with it.

2. Dates on shells from other barranca deposits (W-1897, W-1899, W1901): These data are in line with those from Barranca Caulapan, but do not otherwise affect the situation.

3. Dates from soil near the summit of La Malinche (W-1909, W-1923, W-1912);

No archaeological material is directly associated with these dates, but the thick pyroclastic layer which buried the soil has been correlated with considerable security by tephrochronology to the Buena Vista Lapilli deposit on the Tetela Peninsula which overlies the entirety of the Valsequillo Gravels and is separated from it by an erosional surface.

Commentary: The three dates, averaging 7,140 years ago are in accord with the terminal date for the Valsequillo deposition about 9,000 years ago suggested by W-1898 at Barranca Caulapan. The spread of the dates may reflect the period of soil formation, or be the result of contamination of the soil by non-contemporary phenomena (roolets, humic acid, etc.). They are certainly compatible with the typologic indications of the archaeology of the latest Hueyatlaco occupation. (See above).

4. Dates from soil below ash flow on the west flanks of La Malinche (W-1911, W-1927, W-1908).

No archaeological material is directly associated with these dates but the ash flow which buried the soil shows tephrochronologic similarity (but not conclusive identity) with material in the Lapilli Channel deposit which overlies the latest occupations at the stratigraphy highest archaeological site of Hueyatlaco. If the identity of the ash flow and the Lapilli Channel deposit is ultimately established, these dates would provide a terminus ante quem for all of the Valsequillo archaeology.

Commentary: The three dates are not internally consistent; the two on the soil itself average 25,000 B.P.; the one on "charcoal"

from the soil is less than one-third that age, 8,110 $\pm$ 300. Because of the character of the material dated, none of them can be considered conclusive per se. The soil dates might be subject to contamination by soluble carbon from Carbon 14 deficient ground water and the existence of two such dates does not constitute proof since the same conditions may well have been operative in both instances. The "charcoal" was actually composed of large root-like pieces which might be contemporary with the soil or might post-date it. Accordingly there is no directly available reason for preferring either age.

Evidence from other sources suggests (but does not prove) to Irwin-Williams that the later date, while possible too young, may be closer to the real age; 1) the 25,000 dates are not consistent with another soil date of 17,350 $\pm$ 550 (W-1913) stratigraphically below them (of course alternatively none of the La Malinche barranca dates may be correct). If the tephrochronologic correlation of the overlying ash flow and the Lapilli Channel deposits is ultimately substantiated, a terminus ante quem of 25,000 years for all of Hueyatlaco is not compatible with the indications of archaeology. (a) A gap of 15,000 years between materials in the same region as similar as those from Units C and E at Hueyatlaco and those of the Ajuereado Complex would be unique in archaeology. (b) The existence of well-made bifacial pressure retouched stemmed points in the New World well before their appearance in the Old World is highly unlikely.

Finally it is concluded by Irwin-Williams that it is impossible to assign any very early age to the Tetela sites on the basis of dates from the La Malinche barrancas for the following reasons:

1) The dates themselves are not consistent, and there is no a priori reason for preferring the earlier ones.

2) The early soil dates are not consistent with another later, but stratigraphically lower soil date.

3) The correlation between the relevant ash flow on La Malinche and the Lapilli Channel deposits is not yet certain.

4) The acceptance of a date of >25,000 years ago for the latest occupations at Hueyatlaco would be incompatible with archaeologically available information on rates of typologic change and on world prehistory.

5) Date from soil in pumice beds below ash fall in Barranca Xotanacatla (W-1913).

The soil date is inconsistent with W-1911 higher in the section (see above).

6) Date on soil under "intermediate Pumice", Barranca Angostura.

The soil date is not directly relevant to Valsequillo archaeology.

7) Dates on charcoal from ash flow at Rio Frio (W-1995, GX-065, WSU-468B).

No archaeological material is directly associated with these dates. Preliminary tephrochronologic studies suggested correlation of the Rio Frio ash to outcroppings of ash at the altitude of the Hueyatlaco site and as close as about six hundred meters from it. If this correlation had been confirmed, the dates might have furnished a terminus ante quem for the three pre-Hueyatlaco sites in the Tetela region. However, further analyses by neutron activation have not confirmed this initial correlation.

Accordingly the Rio Frio dates do not provide any evidence on which to postulate a very early age for the sites in the Tetela region.

8) Date on Charcoal from Puente Negro (W-1980).

The date is not directly relevant to the early sites in the Valsequillo region.

Conclusions

The best available direct evidence on the antiquity of man in the Valsequillo region comes from shell dates from the Barranca Caulapan. The association of a single artifact with a single shell date of 21,850 $\pm$ 850 at the Caulapan locality provides as good evidence as could be desired, with the reservations to be expected with regard to the small undiagnostic sample. This date plus those from the top and the base of the same section yielded an indication of the total temporal range ($>$ 35,000 to ca. 9,000 B.P.) for the Valsequillo deposits, and if initial geologic correlations are substantiated, also for the presence of man in the Tetela-Valsequillo region. The upper end of this range (ca. 9,000 B.P.) is in good accord with other archaeological evidence in the Puebla area. The archaeological materials from the lower (pre-unconformity) portion of Hueyatlaco, and from all of the stratigraphically earlier sites in the Tetela region, are technologically simple and typologically distinct from any other dated archaeological materials in the New World. Accordingly there is no archaeological reason why they should not be of considerably greater antiquity, quite possibly as early as the single 21,850 year old artifact from Caulapan, and possibly even as old as the 35,000 year date suggested from the

sample at the base of the Caulapan section.

It is Irwin-Williams opinion that, except for dates on a soil near the summit of La Malinche, radiocarbon data relating to volcanic deposits on La Malinche and at Rio Frio cannot at present be applied with certainty to the archaeology of the Valsequillo region because of inconsistencies between the dates, the character of the material dated, and/or less than certain correlation with the Valsequillo stratigraphy. The summit soil dates (if dates on soils are accepted at all) provide a terminus ante quem for the Valsequillo sites which is in accord with that suggested by the shell dates from Caulapan.

VALSEQUILLO RADIOCARBON DATES

La Malinche crystal-rich surficial ash:		
W-1909	Soil on older moraine	8,240 ± 300 B.P.
W-1923	Soil on pumice 500 m below treeline	7,450 ± 250
W-1912	Soil on pumice near treeline	5,750 ± 280
La Malinche Intermediate (?) pumice:		
W-1925	Soil under pumice, Bca. Angostura	17,650 ± 550
La Malinche ash flow:		
W-1911	Soil under ash flow, Bca. Xotanacatla	25,920 ± 1,000
W-1927	Charcoal under ash flow, Bca. Xotanacatla	8,110 ± 300
W-1908	Soil under ash flow, Bca. Angostura	23,940 ± 1,000
La Malinche lower pumice sequence:		
W-1913	Soil in pumice beds below ash flow, Bca. Xotanacatla (below W-1911)	17,350 ± 550
Rio Frio ash flow:		
W-1995	Charcoal (Steen-McIntyre)	> 40,000
GX-0645	Charcoal, several pieces (Mooser)	> 35,000
WSU-468B	Charcoal (Malde)	22,335 +2055 -1565
Rio San Francisco, Puebla:		
W-1980	Puente del Negro, charcoal in muck	4,350 ± 250
Barranca de Caulapan (site R 14):		
W-1974	Living <u>Holospira</u>	"Modern"
W-1896	Shells, in calcareous soil at top	9,150 ± 500
W-1895	Shells, middle, assoc. bone & flake scraper	21,850 ± 850
W-1975	Shells, bottom, loc. C	> 29,000
W-1898	Shells, bottom, loc. B	> 35,000
W-2189	Shells, bottom, loc. A	> 35,000
Other barranca deposits:		
W-1897	Shells, Bca. Santa Isabel Tlanepantla (R 20)	20,780 ± 800
W-1899	Shells, Rio Atepitzingo (R 8)	> 35,000
W-1901	Shells, Barranca de Xochiac (R 5)	> 35,000