

Photographic and Metric Documentation of Early Diagnostic Artifacts from the Bockman Collection

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INTRODUCTION

This project was undertaken in response to a donation to the Museum of New Mexico by Mr. Neal Bockman in 2007. The donated assemblage of flaked stone artifacts includes drills, scrapers, bifaces and projectile points, the latter of which provide evidence of prehistoric occupations ranging from the Clovis and Folsom Paleoindian Periods (ca. 12,000-10,000 years ago), through the Formative and possibly Proto-Historic Periods (ca. 500 years ago).

These artifacts were collected primarily by Mr. Bockman from the uplands of the Rio Chama Valley between Española and Ghost Ranch, NM. Mr. Bockman took pains to complete note cards for almost all of his donated collection and to place the location of each find on a 7.5 minute USGS topographic quadrangle map. Of the 336 actual objects in his donated collection, one (#176) consists of a cache of 7 obsidian bifaces and a second (unnumbered) is a sub-assemblage of 11 projectile points.

The Bockman Collection contains a good sample ($n = 23$) of Paleoindian, Late Paleoindian and Early Archaic projectile points and point fragments. Knowing that a large database of similar age points, collected from portions of northern New Mexico and the San Luis Valley of southern Colorado, had been analyzed recently by M. Jodry (Smithsonian Institution) and B. Vierra (formerly of Los Alamos National Laboratory), we sought to perform a similar, but abbreviated, analysis on the early points from the Bockman Collection and compare our findings to the Smithsonian – Los Alamos database.

BRIEF THEORETICAL CONTEXT

In New Mexico, as in other regions of the American West, archaeologists have found that the number and variety of projectile point styles appear to have increased from the Folsom period to the Late Paleoindian period. Thus, instead of seeing only one unified cultural tradition, as represented by the classic Folsom / Midland point type, we now think we are seeing, in the relatively diverse point styles associated with the Late Paleoindian period, the diversification and regional adaptations of multiple human groups at that time. Typical point types of the Late Paleoindian period are comprised of both lanceolate and stemmed varieties, and include the Great Basin Stemmed Tradition (typical of the Great Basin area), the Hell Gap point (typical of the Plains regions of Colorado and Wyoming), the Golondrinas point (identified largely with Texas and southeast NM), the Pryor Stemmed and Lovell Constricted points (north-central Wyoming); the James Allen point (associated with the Plains regions), the Foothills-Mountain Tradition and the Angostura points (typical of the Rocky Mountains of Colorado and Wyoming), the Cody Tradition (including Scottsbluff and Eden points found across much of the West), Sierra Vista / Dalton points (Mid-West and southern Colorado) and the Plainview / Milnesand points (New Mexico and Wyoming). Almost all of these named points have been identified in New Mexico.

Before we can address whether the increased diversity in types actually represents the formation of different regional cultural groups or not, we must discern whether these points are, in fact, distinct. Put differently, are some points simply the same styles with different regional names? For example, the Jay

point in New Mexico has generally been associated with the start of the Early Archaic period. However, in other areas outside New Mexico, we see the Hell Gap and Great Basin Stemmed points occurring earlier than, and overlapping in time with, the New Mexico Jay point. Some have implied that, because these points appear to exist along a morphological continuum, they may actually be the same point occurring across a large region of the American West over the same broad period of time. Alternately, the continuation of this stylistic group over time may point to a continuity between Late Paleoindian and Early Archaic adaptations. Similar arguments might be advanced for the Sierra Vista / Dalton, Golondrinas, and James Allen points; the Milnesand and Plainview points, or possibly the Angostura, Foothills-Mountain and Pryor Stemmed points.

PROJECT DESCRIPTION

The first goal of this project was to photographically and metrically document temporally diagnostic flaked stone artifacts in the Bockman Collection that represent the Paleoindian, Late Paleoindian (ca. 10,000-8000 years ago) and Early Archaic Periods (8000-5000 years ago).

The second goal of this project was to metrically compare early projectile points from the Bockman Collection to points listed in the Smithsonian Institution – Los Alamos database (Vierra et al., 2005). Since the database contains primarily metric measurements of Paleoindian, Late Paleoindian and Early Archaic points, it was our intention to augment this database with data from the Bockman Collection. Together with the Smithsonian-Los Alamos data, we hope eventually to address critical developmental questions about the relationship between Paleoindian and Early Archaic cultures in northern New Mexico and southern Colorado.

PROJECT RESULTS

The images provided in Figure 1 are a small sample of the 23 early points documented in the Bockman Collection. These range from Clovis style (early Paleoindian period) to Folsom and Midland styles (middle Paleoindian period) to the Milnesand / Plainview, Agate Basin / Angostura, Golondrinas / Pryor Stemmed, James Allen, and Hell Gap styles (Late Paleoindian period) and finally to the Jay and Bajada styles (Early Archaic period).

Metric measurements were made for each of the 23 points selected for this study from the Bockman Collection and assembled into a small data base. A subset of the analytical attributes was selected in order to compare the points in this study with measurement means derived from the Smithsonian – Los Alamos database of points from southern Colorado and northern New Mexico. The attributes include: the Artifact Number, the Type Name, the Maximum Length (MxL), the Broken Length (BrL), the Maximum Width (MxW), the Maximum Thickness (MxTh), the Blade Width (BIW), the Neck Width (Neck W), the Blade Length (BIL), the Stem Length (Stem L), the Stem Width (Stem W) and the Base Depth (depth of basal concavity). The calculated means from the Smithsonian – Los Alamos database are provided in Table 1 and the results of our analysis, using a sub-set of attributes, are provided in Table 2.

We then made brief comparisons of metric dimensions between the Bockman Collection points and the Smithsonian – Los Alamos database. Most of the Late Paleoindian dates assigned to projectile points, and referenced in this section, are derived from Pitblado (2003) unless otherwise noted.

Folsom & Midland

Not surprisingly, each of the eight Folsom or Midland (unfluted Folsom) points in the Bockman Collection (Nos. 90, 178, 228, 239, 255, 276, 277 and 284) have MxW and MxTh dimensions that fall within the range of those in the Smithsonian – Los Alamos database. Based on this, Artifact No. 208, originally classified as a Clovis style can be reclassified as a Folsom style. The MxL dimension was not examined here, since all the Folsom points are broken bases only, rather than complete points. Folsom

and Midland points have a C-14 date range of 11,000 – 10,000 years and are considered to have been made during the middle Paleoindian period rather than the late Paleoindian period. Clovis points were not included in the Smithsonian – Los Alamos database and are, thus, not discussed here.

Agate Basin / Angostura

Artifact No. 222 is basically a complete point and has been identified as an Agate Basin style, or a possible Angostura style. However, despite the fact that the MxL, MxW and MxTh dimensions of the specimen all fall within the respective ranges found in the Smithsonian – Los Alamos database for Angostura points, it does not have a concave base typical of the Angostura type. Angostura style points appear to be more similar to many points of the Foothills – Mountain Tradition (Frison, 1991) and, in some cases, Golondrinas points. Based on these findings, the Agate Basin name seems most appropriate for this specimen. The Agate Basin point has an approximate C-14 age range of 10,500 – 9,600 BP, which is older than the Angostura C-14 age range of 9,700 – 7,550 BP and was more likely made during the middle Paleoindian period.

James Allen

Two points in the Bockman Collection (nos. 209 and 283) have been classified as James Allen / Golondrinas and James Allen styles, respectively. Artifact No. 209 is only a base fragment, while No. 283 is a complete point. As such, both No. 209 and No. 283 are within the MxW and MxTh ranges for the James Allen point, and No. 283 is just below the minimum for MxL by only 1.3 mm. Point No. 283 also fits within the MxL and MxTh ranges for the Angostura point as well, but is too thin in cross-section. It is also within MxL, MxW and MxTh ranges for the Sierra Vista / Dalton types, but on the low sides of those ranges. Point No. 209, on the other hand, is too narrow in comparison to the Angostura type but almost matches the means for MxW and MxTh for the Sierra Vista / Dalton types. Point No. 209 is thus most logically described then as a James Allen or Sierra Vista / Dalton point, rather than a Golondrinas. Clearly, the James Allen and Sierra Vista / Dalton types can be considered as overlapping, similar styles, but not similar to the Golondrinas style. The James Allen C-14 age range is 9,350 – 7,900 BP, which is similar to the Sierra Vista / Dalton age ranges.

Golondrinas & Sierra Vista / Dalton

Artifact Nos. 173 and 209 have been classified as Golondrinas and James Allen / Golondrinas, respectively. As discussed above, Point No. 209 falls within the MxW and MxTh ranges for both the James Allen and the Sierra Vista / Dalton types. Point No. 173 is a complete point and it falls within the MxL range for James Allen, Angostura and Sierra Vista / Dalton, although it compares most favorably with the latter two styles. Also, it is too narrow and too thick to match a James Allen. While its width dimension falls comfortably within MxW ranges for Angostura and Sierra Vista / Dalton, it is too thick for the latter. These data reinforce the idea that No. 209 is not a Golondrinas point and further underscore the suggestion that Golondrinas and Angostura points are similar types. The Angostura point has a C-14 age range of 9,700 – 7,550 BP, which is quite similar to the Golondrinas range of ca. 9,500 – 8,400 BP (Perttula 2004).

Table 1. Comparative statistics for Paleoindian, Late Paleoindian & Archaic point types – Smithsonian database.

DIMENSION		Mx L	Br L	Mx W	Mx Th	Bl W	Neck W	Bl L	Stem L	Stem W	Base Depth	Max N
TYPE	STATISTIC											
Folsom												
	mean	36.77	31.42	22.48	4.43	18.49	21.34	23.12	25.81	21.12	2.94	
	n	7	13	19	20	5	2	5	2	8	8	28
	max	55.69	60.27	41.54	8.65	24.59	21.63	53.93	28.16	28.30	4.67	
	min	24.24	16.32	13.13	2.73	11.97	21.04	9.46	23.45	14.11	1.23	
Cody / Eden												
	mean	59.97	24.83	19.44	6.10	19.38	16.08	42.33	15.28	17.62	1.36	
	n	13	28	40	40	17	20	12	24	34	18	41
	max	94.00	57.02	26.01	9.20	25.89	21.10	57.64	28.61	23.33	3.60	
	min	42.63	10.21	14.06	1.33	15.44	7.01	21.90	7.29	14.26	0.62	
Jay												
	mean	50.24	36.77	25.34	8.39	24.20	20.29	25.55	23.42	17.20	1.83	
	n	29	37	62	64	24	33	27	36	56	17	64
	max	91.66	64.14	42.60	13.39	31.58	32.11	46.28	42.54	25.01	3.27	
	min	28.77	21.67	18.34	5.86	16.99	6.04	7.78	12.41	10.50	0.73	
Bajada												
	mean	41.62	41.66	20.92	8.36	19.96	16.94	22.70	19.97	16.60	2.01	
	n	32	26	56	57	45	49	33	47	42	39	58
	max	58.83	62.13	32.54	10.52	31.65	21.58	43.16	32.49	20.53	5.62	
	min	27.10	23.00	17.04	5.67	12.83	6.04	6.91	13.53	12.83	0.70	
Hell Gap												
	mean	80.55	34.77	28.38	8.17	28.60	24.52	47.69	35.53	17.18	1.18	
	n	4	3	7	7	4	4	3	3	7	2	7
	max	91.91	48.66	31.18	9.55	30.23	29.20	62.27	55.53	21.59	1.49	
	min	61.88	23.40	24.91	6.59	26.15	21.33	34.16	24.56	11.66	0.87	
Great Basin Stem												
	mean	58.95	n/a	20.32	7.87	18.99	15.76	41.27	16.35	9.08	n/a	
	n	2	0	2	2	2	2	2	2	2	0	2
	max	66.31	0.00	21.07	8.19	19.47	15.87	49.37	19.01	9.77	0.00	
	min	51.58	0.00	19.57	7.54	18.51	15.64	33.17	13.69	8.38	0.00	
Sierra Vista / Dalton												
	mean	47.38	24.10	22.69	5.43	20.88	20.30	32.37	14.44	21.66	3.26	
	n	6	25	29	30	14	19	6	22	25	28	35
	max	59.27	54.62	30.32	7.07	24.13	24.32	42.39	32.95	27.09	5.22	
	min	34.22	10.98	16.77	4.08	14.87	15.19	20.18	7.51	16.20	1.28	
Foothills Mtn / Angostura												
	mean	43.80	29.00	19.81	6.92	19.16	18.99	26.60	18.84	14.07	1.97	
	n	13	13	26	25	12	12	11	17	24	21	26
	max	57.01	54.84	27.55	8.25	25.86	22.77	35.57	26.38	16.52	3.93	
	min	30.81	12.19	16.01	5.28	14.58	14.76	16.84	11.27	11.41	0.88	
James Allen												
	mean	61.73	22.92	22.41	5.34	20.87	21.57	40.49	20.40	19.84	4.57	
	n	3	4	7	7	4	2	3	4	6	4	7
	max	76.87	32.44	26.08	6.49	22.90	23.05	56.63	22.11	22.02	5.39	
	min	39.12	14.75	20.19	4.45	19.04	20.08	19.66	19.50	16.87	4.00	
TOTAL												268

Note: all measurements reported in millimeters / Mx L = Maximum length; Br L = Broken length; Mx W = Maximum width; Mx Th = Maximum thickness; Bl W = Blade width; Neck W = Neck Width; Bl L = Blade length; Stem L = Stem length; Stem W = Stem width; Max N = Total number in sub-sample.

Table 2. Comparative measurements for Paleoindian, Late Paleoindian and Archaic point types – Bockman Collection.

Artifact No.	Type	Mx L	Br L	Mx W	Mx Th	Bl W	Neck W	Bl L	Stem L	Stem W	Base depth
111	Clovis?	60.47	n/a	30.36	8.82	29.61	n/a	37.64	22.83	30.36	3.26
221	Clovis? (blade only)	42.22	42.22	22.97	5.41	22.13	n/a	35.57	6.65	22.93	n/a
208	Clovis?	24.08	24.08	26.29	5.53	26.25	n/a	24.08	n/a	n/a	n/a
90	Folsom	37.09	37.09	19.79	4.81	18.02	n/a	17.29	19.80	19.73	n/a
178	Unidentified (Folsom?)	26.21	26.21	23.38	4.71	26.21	n/a	26.21	n/a	n/a	n/a
239	Folsom	25.02	25.02	19.12	4.11	n/a	n/a	n/a	25.02	19.12	3.37
276	Folsom	12.99	12.99	24.09	4.11	n/a	n/a	n/a	12.99	24.09	3.22
228	Midland	47.29	47.29	23.17	6.76	47.29	n/a	47.29	n/a	n/a	1.68
255	Midland	29.57	29.57	19.51	4.43	n/a	n/a	n/a	29.57	19.51	1.66
277	Midland	27.58	27.58	19.03	4.19	n/a	n/a	n/a	27.58	19.58	1.59
284	Midland?	18.60	18.60	22.51	4.58	n/a	n/a	n/a	18.60	22.51	.75
??	Milnesand / preform?	46.45	n/a	20.60	7.11	20.05	n/a	30.31	16.14	20.60	n/a
149	Milnesand / Plainview	47.32	n/a	26.06	5.80	26.06	n/a	47.32	n/a	n/a	n/a
254	Plainview	37.42	37.42	22.89	6.15	20.47	n/a	19.99	17.43	20.71	1.76
222	Angostura / Agate Basin	47.44	n/a	20.84	6.17	18.26	n/a	27.51	19.93	20.84	n/a
283	James Allen	37.82	n/a	16.96	4.71	16.96	n/a	37.82	n/a	n/a	2.77
209	James Allen / Golondrinas	24.15	24.15	24.49	5.93	24.23	n/a	8.94	15.21	23.42	4.29
173	Golondrinas	45.45	n/a	18.97	8.09	18.95	18.50	26.58	18.87	17.74	1.37
110	Hell Gap / Jay	63.43	n/a	28.19	9.56	28.03	27.17	31.49	31.94	24.66	n/a
C32	Hell Gap / Jay / Bajada	49.73	49.73	28.53	8.56	28.53	23.01	25.37	24.36	17.32	1.23
C33	Jay	56.40	56.40	23.71	9.20	23.62	19.66	37.89	18.15	19.32	.96
268	Jay / Bajada	45.98	n/a	22.83	8.64	22.83	20.61	18.41	27.57	17.24	1.32
272	Jay / Bajada	52.47	n/a	27.80	8.05	27.80	24.98	24.01	28.46	20.52	1.19

Note: all measurements reported in millimeters / Mx L = Maximum length; Br L = Broken length; Mx W = Maximum width; Mx Th = Maximum thickness; Bl W = Blade width; Neck W = Neck Width; Bl L = Blade length; Stem L = Stem length; Stem W = Stem width; Max N = Total number in sub-sample.

Plainview / Milnesand

Points No. 284 and No. 254 were classified as Plainview points. Points No. 149 and “No Number” were classified as Milnesand points. Both types are considered typical of Late Paleoindian points in eastern New Mexico. However, Plainview points typically have shallow, concave bases and slightly expanding sides, while the Milnesand point has more parallel sides and flat or slightly convex bases. The MxW dimensions for all four points are roughly similar, falling between 26.06 and 20.60 mm, while the No. 284 point seems to be significantly thinner than the others (4.58 vs. 7.11, 5.80 and 6.15 mm). The Smithsonian – Los Alamos database contained only two Plainview points, with MxW dimensions of 22.28 and 24.00 mm, and MxTh dimensions of 5.23 and 4.52 mm. Points No. 284 and 254 (the Bockman Plainview points) have MxW dimensions within the width range of those for the Smithsonian – Los Alamos Plainview points. The two Milnesand points in the Bockman Collection (No. 149 and “No Number”) fall outside that range. These data suggest that Milnesand and Plainview points may be distinct types.

Hell Gap / Great Basin Stemmed / Jay / Bajada

Points No. 32, 33, 110, 268 and 272 are classified as either Hell Gap / Jay, Jay or Jay / Bajada. Those classified as Bajada (No. 32, 110 and 268) have more well-defined stems and shallow, concave bases. Both No. 268 and 272 are complete points and their MxL dimensions fall at the high end of the MxL range for Bajada points in the Smithsonian – Los Alamos database. Those points, and No. 32, fall into the upper range of the MxW dimension, while their MxTh dimensions fall close to the mean. In contrast, the MxL, MxW, and MxTh dimensions of No. 268 and 272 fall near the means of those dimensions for the Jay point. Points No. 268 and 272 are below the MxL range for Hell Gap points and almost below the MxL range for Great Basin Stem points. Point Nos. 268 and 32 are within the MxW range for Hell Gap points, but significantly wider than Great Basin Stem points. Points No. 32, 268 and 272 are within the MxTh range for Hell Gap points, but generally thicker than the Great Basin Stem points.

The Hell Gap / Jay points (No. 32 and 110) have slightly convex bases and are also thought to be similar to Great Basin Stemmed points. Only No. 110 falls with the MxL dimension for Hell Gap points, and it is at the very low end of that range. It also falls within the MxTh range for Hell Gap points, but at the top end of that range. No. 32 is below the MxL range and just above the mean for the MxTh dimension. Both points fall close to the mean of the MxW dimension for Hell Gap points. In comparisons of these two points to Great Basin Stem points, point No. 110 falls within the MxL range, while No. 32 is below. Both points are too wide and too thick to be Great Basin Stem points.

Metrically, all five points (32, 33, 110, 268 and 272) could be considered as Jay points, since Jay points in the Smithsonian – Los Alamos database had very broad ranges for the MxL, MxW and MxTh dimensions. Thus, it appears that the Hell Gap and Jay points could be morphologically interchangeable, although there is a wide variety of sizes in the Jay type. The Early Archaic points in the Bockman Collection can be classified as Jay variants or even early Bajada types.

Chronologically, the Great Basin Stem points date from 10,700 to 7,550 BP, while the Hell Gap points date from 10,450 to 9,350 BP. Concave base stem points date to 8,200 – 8,000 BP (Pitblado 2003:102). The dates established by Irwin-William (1973) for Jay points (7,500 – 6,800 BP) and Bajada points (6,800 – 5,200 BP) are less secure and additional work may reveal

their temporal overlap with each other and the overlap of Jay points with other concave base stem points.

SUMMARY & CONCLUSIONS

Based on our brief metric analysis of the projectile point sample from the Bockman Collection, there are apparent similarities among several named types of Late Paleoindian point styles that cluster across: 1) James Allen and Sierra Vista / Dalton types; 2) Angostura, Mountain-Foothills and Golondrinas types; 3) and Hell Gap, Jay and Bajada types. Plainview and Milnesand may be distinct, although this conclusion is based on a very small sample. While overlapping date ranges for some of these clusters suggest that morphologically similar points may have more widespread distributions during certain periods than we had previously thought, the cultural meaning of this patterning is still not clear. A broader research effort, examining similarities and differences among contemporary sites with similar point types over the regions defined by these point clusters may shed more light on this problem.

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Figure 1. Typical Early Projectile Points from Bockman Collection.



No. 111 - Clovis



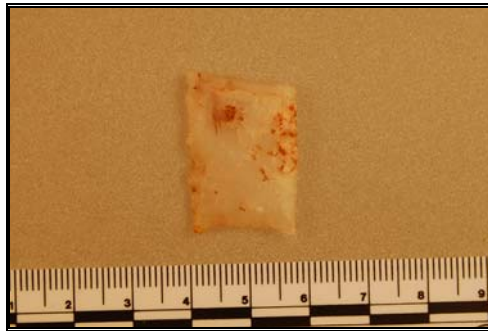
No. 239 - Folsom



No. 222 - Agate Basin /
Angostura?



No. 149 - Milnesand



No. 277 - Midland



No. 268 - Jay / Bajada



No. 173 - Golondrinas



No. 209 - Golondrinas / James Allen?



No. 110 - Hell Gap / Jay