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#### **Authors**

Bennyhoff, James A.  
Hughes, Richard E.

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## REPORTS

### Fremont Period Shell Trade<sup>1</sup>

**JAMES A. BENNYHOFF**  
(Deceased)

**RICHARD E. HUGHES**  
Geochemical Research Laboratory,  
20 Portola Green Circle, Portola Valley, CA 94028

*This paper reports on and synthesizes what was known, as of 1984, about the conveyance of shell beads during the Fremont Period (ca. A.D. 400–1300) in the eastern Great Basin. Detailed site-specific analyses of extant data indicate that the majority of shell beads imported during this time interval came from Southern California.*

During 1982–1984, James Bennyhoff and the junior author were involved in synthesizing what was then known about ethnographic and prehistoric trade throughout various parts of the Great Basin. The results of that effort were published in the Great Basin volume of the *Handbook of North American Indians* (Hughes and Bennyhoff 1986). Because of size limitations, the general editor of the series eliminated major sections of the original manuscript from our *Handbook* chapter. We had hoped to return to these sections, update them, and publish each separately, but other projects intervened, and in 1993 Jim Bennyhoff's death put an end to that possibility. The paper that follows was completed in 1984, and passages from it appear in Hughes and

Bennyhoff (1986:251–252). The only major change to the original manuscript has been an updating of bead-type references to conform to the Bennyhoff and Hughes (1987) typology, which was essentially finished by 1984. This complete version of the original Fremont Period Shell Trade section that Bennyhoff and I submitted for the *Handbook* is offered here because it presents a significant amount of previously unpublished material; material that, to my knowledge, has yet to be superseded in depth or detail (see Note 1).

#### THE FREMONT SHELL TRADE STUDY

The available information on shell trade during the Fremont period (A.D. 400–1300) is very uneven. Nonetheless, we have organized the data to accord with the five Fremont districts, or variants, proposed by Marwitt (1970:Fig. 84, 1986:Fig. 2), within which more than 187 shell artifacts were found at 23 archaeological sites.<sup>2</sup> Frequencies per site ranged from 1–91 ( $\bar{x}=8$ ); if the Caldwell necklace (73 beads) is counted as a single occurrence, the average number of beads per site would be five, with a maximum of 23 (from the Evans Mound).

The occurrence of Fremont shell artifacts by district is shown in Table 1; a finer breakdown by district, site, and bead type appears in Table 2; and site-specific references to data presented in Table 2 appear in Table 3. The location of major Fremont sites appears in Marwitt (1986: Fig. 2) and Hughes and Bennyhoff (1986: Fig. 1).

**Table 1**

**FREMONT SHELL ARTIFACTS BY DISTRICT (VARIANT)**

District	No. of Sites	No. of Beads	% of Total	No. of Occurrences	% of Total	Definite Imports	% Imported
Parowan	7	44 <sup>+</sup>	23.5	60 <sup>*</sup>	47.6	60 <sup>*</sup>	59.4
San Rafael	3	16	8.6	16	12.7	14	13.9
Sevier	4	11	5.9	11	8.7	11	10.9
Uinta	3	97	51.9	20	15.9	13	12.9
Great Salt Lake	6	19	10.2	19	15.1	3	3
<b>Total</b>	<b>23</b>	<b>187<sup>+</sup></b>	<b>100.1</b>	<b>126</b>	<b>100</b>	<b>101</b>	<b>100.1</b>

<sup>+</sup>= A minimum of 24 beads has been assigned to the "several dozen" *Olivella* beads reported by Judd (1919:19). <sup>\*</sup>= At least (minimum number).

### CAVEATS ABOUT THE DATA AND THE SYNTHESIS

Before proceeding further, we need to comment on problems that have affected our confidence in this synthetic effort. First, most analysts have placed primary reliance on ceramics for dating and seldom illustrate or adequately describe the shell artifacts recovered. The 165 shell beads classified in Table 2 represent at least 21 types, but the inadequate descriptions and reduced photographs in cited literature leave many uncertainties. For example, only five of the “several dozen” shell beads reported by Judd (1919:19) from Paragonah can be classified, and only half (73) of the 147 fragments representing one necklace from Caldwell village (Ambler 1966:65) have been counted (see note accompanying Table 2). Wormington (1955:64) reported ten “whole and fragmentary shells, three perforated at lower end.” The latter description suggests *Olivella biplicata* Split End-perforated beads (type C4), but she may have intended Spire-lopped (type A1 or A6). Three of the six *Olivella biplicata* have no description and two fragments were not identified as to genera. Aikens (1966:72) reported three “split bivalve” beads, but the specimen illustrated in Figure 34h looks like an *Olivella* Amorphous (type C7) bead. We may have misinterpreted the brief verbal descriptions provided by Steward (1936:33) and by Sharrock and Marwitt (1967:39–40), but an examination of the actual beads would be needed for accurate *Olivella* bead-type classification using the criteria in Bennyhoff and Hughes (1987). In sharp contrast to both the Southwest and the western Great Basin, only one of 187 Fremont period shell specimens occurred with a burial,<sup>3</sup> and this lack of large grave lots greatly impedes analysis of the different types of beads.

### SUMMARY OF EXTANT SHELL BEAD DATA

With the problems outlined above acknowledged, we advance the following tentative summary of extant data on Fremont Period shell trade. By far the largest number of shell artifacts came from the Pacific coast (143 specimens), with 137 beads made from *Olivella biplicata*. Most of the latter probably came from Southern California, but the center of punched-bead manufacture (for types D1 and D2, n=14 specimens) appears to have been the San Joaquin Valley. Both of

these regions were served by the Mohave trade route. The single *Olivella baetica* specimen came from northern waters, while the single *Olivella pedroana* is a Southern California species. The rarity of *Haliotis* (two pendants of undetermined species confined to the Parowan district) is in sharp contrast to the 2,144 abalone specimens from the western and southwestern subareas of the Great Basin (Bennyhoff and Hughes 1987:Table 9). Southern California is therefore the probable source for the Fremont *Haliotis* specimens, as it was definitely the source for the *Mitra* (a unique occurrence in the Great Basin) and the *Tivela* specimens.

Definite Gulf of California species were much less frequent (at least 19 specimens, but Judd [1919:19] provided no count for the *Olivella dama* beads at Paragonah). At least 17 *Olivella dama* were documented, while the single *Cerithidea albonodosa* and the single Large Bilobed bead represent unique Great Basin occurrences. These beads doubtless moved along the Colorado River route, controlled by the Hohokam. The absence of *Glycymeris* is a major contrast to its presence in collections of Southwestern shell ornaments (Jernigan 1978: Figs. 9, 20, 53, Plate 1).

The three naiad shells (one *Lampsilia?* and two *Lasmigona?*) from two southwest Colorado sites were unmodified, but had to have been traded from their native Missouri-Mississippi drainage. Although Tower (1945:Frontispiece) placed the southwestern portion of the Colorado Plateau within the limits of trade from the Gulf of Mexico, no Atlantic species have been reported from Fremont sites.

Few of the bead types have a restricted temporal significance in California. The *Olivella* Split Drilled (type C2) bead is a diagnostic Middle Period marker in Central (Bennyhoff and Hughes 1987) and Southern California (200 B.C.–A.D. 1150; King 1982: 47) and could represent the Cub Creek phase (pre-A.D. 800; Jennings 1978:112) at Caldwell Village (Ambler 1966:Fig. 50g). If accurately identified from Steward’s (1936:33) description, the two Split Drilled beads from the Beaver site would represent a pre-Summit phase (although a variant of the Oval type discussed below is a possible alternative).

The *Mitra catalinae* bead from the Turner-Look site (Wormington 1955:64) should also be a Middle Period marker type. It appears in phase 3 of the Middle Period (A.D. 300–700) in Southern California (King

**Table 2**  
**FREMONT SHELL ARTIFACTS BY SITE AND DISTRICT**

District	Parowan							San Rafael			Sevier				Uinta			Great Salt Lake						Total						
See Table 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
	Evans	Paragonah	Beaver	Marysvale	Kanosh	Garrison	Amy's Shelter	Parowan Total	Poplar Knob	9 Mile Canyon Sky House	Turner Look	San Rafael Total	Backhoe Village	Nephi	Tonele	Grantsville	Sevier Total	Caldwell Village	Pine Springs	48SWG4	Uinta Total	Levee	Knoll	Promontory Cave 2	Bear River No. 1	Willard	Injun Creek	Great Salt Lake Total	TOTAL	
<b>Pacific Coast (<i>Olivella biplicata</i>)</b>																														
Spire-lopped							2	2						1			1	1			1									4
Spire-lopped End Perfor.		1						1											4		4									1
Barrel Split																			4		4									4
C2				2				2										1			1									3
Split End-Perfor.		4						4		3	3																			7
C7																									3					3
D1		6	2					8	4			4	1				1													13
D2			1					1																						1
G1							1	1																						1
J? Wall Disk					1	4		5		2	2		3		1		4													11
C3																	1	83			83									84
Unidentified											3	3																		3
Reworked					2			2																						2
<i>Olivella biplicata</i> total	10	4	2	3	4	2	1	26	4	2	6	12	1	4	1	1	7	89			89					3			3	137
<b>Pacific Coast (other)</b>																														
A1 <i>O. baetica</i>											1																			1
A1a <i>O. pedroana</i>																		1												1
<i>Halotis</i> sp.		1				1																								2
<i>Mitra catalinae</i>											1																			1
<i>Tivela sultorum</i>		1																												1
Other Pacific Coast total	2				1						2							1												6
Pacific Coast Total	12	4	2	3	5	2	1	29	4	2	8	14	1	3	2	1	7	90			90				3			3	143	
<b>Gulf of California</b>																														
B3. <i>O. dama</i>		10	4					14						3			3													17
<i>Cerethidia albonodosa</i>		1						1																						1
Unidentified bilobed													1				1													1
Gulf of California total	11	4						15					1	3			4													19
<b>Great Plains</b>																														
<i>Lampsila?</i>																			1		1									1
<i>Lasmigona?</i>																				2	2									2
Plains total																					3									3
Imported Total	23	8	2	3	5	2	1	44	4	2	8	14	2	6	2	1	11	90	1	2	93				3				3	165
<b>Local</b>																														
<i>Anodonta</i> pendant																						2	3				6			11
<i>Margaritifera</i> pendant																								1						1
Serrated mussel pendant																									3					3
Local Total																						2	3	1	3	6			15	15
<b>Unidentified</b>																														
"Shell disk, unperforated"																											1			1
"Shell pendant"																		1												1
"Clam shells"																				3		3								3
Fragments										2	2																			2
Unidentified Total										2	2										4					1			1	7
<b>Site Total</b>	<b>23</b>	<b>8</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>44</b>	<b>4</b>	<b>2</b>	<b>10</b>	<b>16</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>11</b>	<b>91</b>	<b>1</b>	<b>5</b>	<b>97</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>6</b>	<b>19</b>	<b>187</b>	

**Notes:** Judd (1919:19) reported "several dozen" *Olivella biplicata* and *Olivella dama* from Paragonah. Only four of these were illustrated in his 1926 report (Plate 46f-i). Multiple types are represented, so only four specimens (and a minimum of four *Olivella dama*) have been tabulated.

Ambler (1966:65) reported that six ovoid beads and 147 fragments represent one necklace found on a floor at Caldwell Village. Only half of the fragments have been counted. If this necklace is counted as one occurrence, there would be only six *Olivella* Oval (type C3) beads and a site total of 14 shell specimens, a figure more in line with the remote Uinta location.

**Table 3**  
**FREMONT SITES WITH SHELL ARTIFACTS**  
**REPORTED IN TABLE 2**

Number	Site	Reference
1.	Evans Mound	Alexander and Ruby 1963: 24; Metcalfe 1982: 89
2.	Paragonah	Judd 1926: Plate 46f-i; MacBain 1956: 54
3.	Beaver	Steward 1936: 33
4.	Marysvale	Gillin 1941: 32
5.	Kanosh	Steward 1936: 33
6.	Garrison	Taylor 1954: 56
7.	Amy's Shelter	Gruhn 1979: 146
8.	Poplar Knob	Taylor 1957: 108
9.	Nine Mile Canyon	Gillin 1955: 21
10.	Turner-Look	Wormington 1955: 64
11.	Backhoe Village	Madsen and Lindsay 1977: 73
12.	Nephi	Sharrock and Marwitt 1967: 39
13.	Toole	Gillin 1941: 32
14.	Grantsville	Steward 1936: 33
15.	Caldwell Village	Ambler 1966: 64
16.	Pine Spring	Sharrock 1966: 111
17.	48Sw94	Sharrock 1966: 95, 109
18.	Levee	Fry and Dalley 1979: 61
19.	Knoll	Fry and Dalley 1979: 79
20.	Promontory Cave 2	Steward 1937: 101
21.	Bear River	Aikens 1966: 72
22.	Willard	Steward 1936: 33
23.	Injun Creek	Aikens 1966: 51

1982:Fig. 7r). King (1982:363) has assigned all *Mitra* to the species *M. idae*, but Gifford (1947:8, type C4) indicates that the smallest specimens are probably *Mitra catalinae*.

The *Olivella* Split Amorphous (type C7) bead is diagnostic of the Middle/Late Period transition phase (A.D. 700–900) in Central California. The three specimens from the Bear River Site No. 1 (Aikens 1966: Fig. 34h) represent the Bear River phase (A.D. 400–1000, Jennings 1978:162) and the radiocarbon date of A.D. 885 ±120 (Holmer and Weder 1980:59) from this site is in agreement with the Central California dating for this marker type.

The *Olivella* Oval (type C3) bead also appears for the last time in California and the western Great Basin during the Middle/Late Period transition phase. The occurrence of a probable necklace (ca. 73 type C3 beads) on the floor of Pithouse 14 at Caldwell Village with Uinta Gray ware sherds and no Anasazi trade wares (Ambler

1966:35–36, 65) supports an early dating, ca. 800–950 (Whiterocks Phase), prior to Ambler's (1966:38) dating of A.D. 1050–1250 based on later Anasazi trade wares found in four other pithouses. We have followed Ambler's oval bead classification, although his Fig. 50p may well be type C2 (pre-A.D. 700), and he indicates (p. 65) that other types may be included in the 147 fragments.

The *Olivella* Shelved Punched (type D1) and *Olivella* Rectangular Punched (type D2) beads are most common in the same Middle/Late Period transition phase in Central California (A.D. 700–900) and Southern California (A.D. 1050–1150; King 1982:7; Phase M5) but persist into early Phase 1 of the Late Period (A.D. 900–1100) in Central California. The single type D1 from Backhoe Village (Madsen and Lindsay 1977:Fig. 43A) would support the earlier dating because the seven radiocarbon dates from this site span A.D. 770–910. The other 13 Punched (types D1 and D2) beads appear to be contemporaneous with early Phase 1 of the Late Period in Central California (A.D. 900–1100) or Phase M5c in Southern California (A.D. 1050–1150; King 1982:47). The four type D1 specimens from the Poplar Knob site (Taylor 1957:108, Fig. 37) were found together on a floor with 15 Mancos Black-on-White sherds (A.D. 950–1050/1200). The six type D1 beads from the Evans Mound (Alexander and Ruby 1963:24, Plate 1i, k) were assigned to the Paragonah phase (A.D. 1050–1175). A similar dating is probable for the three illustrated specimens (two type D1, one type D2) from the Paragonah site (Judd 1926:Plate 46h, i [type D1], g [type D2]). It should be noted that the Shelved Punched type is the most common Fremont shell-bead type, yet no *Olivella* Sequins (type M1), normally associated with type D1 in Central California, appear in Fremont sites. This discrepancy strengthens the San Joaquin Valley source proposed for Punched beads, whereas Sequins were manufactured on the Central California coast and along the north shore of San Francisco Bay. The discrepancy also is apparent in the western Great Basin, where the 20 *Olivella* Sequins were far outnumbered by the 88 Punched beads (types D1, D3; Bennyhoff and Hughes 1987:Table 5).

The tiny *Olivella* saucer bead (type G1 in Bennyhoff and Hughes 1987:132) is not a good time marker in Central California, but it occurred at Amy's Shelter in deposits dated to ca. A.D. 1000–1200 (Gruhn 1979:146, 151).

A date of A.D. 900–1100 can be assigned to the Large Bilobed bead from Backhoe Village (Madsen and Lindsay 1977:Fig. 43b) because this type is most common during the Sacaton phase of the Hohokam (Haury 1976:310).

Fremont peoples occasionally reworked the imported *Olivella biplicata* Spire-lopped beads. The Spire-lopped End-perforated bead (type A6; Judd 1926:Plate 46f from Paragonah) is a new, unique form that had been drilled for suspension. At least two beads from Marysvale (Gillin 1941:Plate Vb, 10, 11) appear to be non-standardized, reworked specimens. The seven type C4, along with eight from the western Great Basin (Bennyhoff and Hughes 1987:Table 6), represent a type not found in California. We should note that Bennyhoff and Heizer (1958:75, type 3b1, Fig. 1, nos. 29–32) lumped types C2 and C4 together as a Middle Period type. The Fremont data clearly indicate that type C4 is later in the Great Basin, contemporaneous with Phase 1 of the Late Period in California.

A total of 15 *Anodonta* or *Margaritifera* pendants represent local freshwater shells, all from the Great Salt Lake district. Another seven specimens represent unidentified “shell.” If these 22 specimens are omitted, 101 occurrences represent definite imports, and by this measure the Great Salt Lake district was clearly the most isolated.

## SUMMARY AND CONCLUDING COMMENTS

The remaining types in Table 2 lack specific temporal significance, but are compatible with the A.D. 400–1300 time span of the Fremont culture. If meaningful provenience were available for the 187 shell artifacts, a refined phasing might be possible. But for now, an early and late division seems apparent. Six types (*Mitra*, C2, C3, C7, D1, and D2), representing 105 beads (35 occurrences), are definitely early (A.D. 400–950). We can probably add the six other beads from Caldwell Village (types A1, B3, *Olivella pedroana*), although there were seven Anasazi trade sherds at the site (dating to A.D. 1050–1226; Ambler 1966:38). If the three shells from the Plains are added, a total of 114 specimens (69% of the 165 imports) or 44 occurrences (44% of 101) is obtained. By this division, the late Fremont Period (A.D. 950–1300) would be represented by 51 specimens (31%)

or 57 occurrences (56%). The frequency of occurrences is preferred here, which indicates a slight increase in shell trade with the south and west, although the change is not as dramatic as the influx of decorated and corrugated Anasazi pottery. Although all five districts received shell beads in the earlier period, no beads reached the Great Salt Lake district or the Uinta (?) district in the later period. This difference supports the conclusion that the majority of the shell beads imported by Fremont peoples came from the Southern California area, rather than from the Gulf of California, east across the western Great Basin or from the north.

## NOTES

<sup>1</sup>Since our last collaborations (Hughes and Bennyhoff 1986; Bennyhoff and Hughes 1987), some significant research has been conducted on the dating of Californian shell artifacts and on Fremont shell bead and ornament conveyance. In particular, AMS dates now support a revised chronology for *Olivella* shell beads (termed Scheme “D;” see Groza 2002, Milliken et al. 2007:Fig. 8.4, Hughes and Milliken 2007:Fig. 17.2, and Groza et al. [this volume]) which helps to reconcile the conflict between the dating of similar bead types in Southern California (e.g., King 1982) and Northern California (Scheme B1, Bennyhoff and Hughes 1987). The implication of these new data is that individual types were contemporaneous throughout California and across much of the Great Basin. In addition, the revised “Scheme D” chronology may resolve inconsistencies between the current dating of pottery types and the previous dating of shell bead styles in Fremont period sites (using Scheme B). Furthermore, Chester King (personal communication, 2010) informs me that his research shows that *Olivella dama* Barrel beads ceased being used after the Sacaton Phase of the Hohokam and that there is an apparent cessation of use at Malibu and in the Fremont area at the same time. He notes that Split Punched beads apparently do not occur with *O. dama* Barrels but are found with *O. dama* Spire Ground; that sites (e.g., the Baker site) with predominantly Split Punched beads have few *O. dama* Barrels; and that Split Punched beads are found in Pueblo III contexts and not earlier. Jardine (2007) and Janetski et al. (2011) update what is known of Fremont shell bead occurrences, and the excellent recent summaries by Janetski (2002) and Madsen and Simms (1998) place Fremont studies in a broader perspective.

<sup>2</sup>Those comparing this text with the excerpts published in Hughes and Bennyhoff (1986:251) will probably have noted an error. The monograph attributed to Bennyhoff (1985) in the bibliography of the Great Basin volume of the *Handbook of North American Indians* (p. 750) does not, nor did it ever, exist. Including this citation in the *Handbook* was a decision made by the general series editor. Bennyhoff and I were unable to correct the error before it made its way into print, because chapter authors were not allowed to edit galley proofs.

<sup>3</sup>At the Turner-Look site, one “perforated *Olivella*” was found in the thoracic cavity of a 4–6 year old infant (Wormington 1955:64).

### ACKNOWLEDGMENTS

The junior author is particularly grateful to Joel Janetski for gently prodding him over the years to publish this paper, and hopes that the data and interpretations contained herein will provide a solid basis for continued study and refinement. Reviews and substantive comments by Joel Janetski and Chester King, incorporated in Note 1, brought this paper more up to date, and organizational suggestions by Kim Carpenter and Lynn Gamble also were extremely helpful. Special thanks to Ben Hughes for preparing Table 2.

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