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Central California Augustine: Implications for Northern California Archaeology

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ALL ARCHAEOLOGISTS WORKING IN California are familiar, to a greater or lesser extent, with the Central California Taxonomic System (CCTS) developed formally by Richard Beardsley (1948, 1954). Beardsley arranged three sequential horizons (Early, Middle, and Late) and recognized the similarities between the Bay and Delta for the Late Horizon, but had insufficient material from West Berkeley (CA-Ala-307) to realize that it contained an Early Horizon occupation. The work since Beardsley in the North Coast Ranges, especially what Fredrickson and I (chapter 2, this volume) call the Borax Lake Pattern which will not fit into this sequence, and my work with the Meganos aspect (see chapter 1) in the Stockton District, has prompted Fredrickson and me to propose an alternative system utilizing the concepts of *pattern* and *aspect*.

Our dissatisfaction with Beardsley's system, particularly his use of the term *horizon*, became apparent when contrasted with the one proposed by Willey and Phillips (1958). The horizon, in Willey and Phillips's (1958) usage refers to a spatial continuity of cultural traits or assemblages which spread rapidly over wide areas, while Willey and Phillips defined areal traditions as temporal continuities of persistent cultural systems. Unfortunately, Willey and Phillips also combined two different processes in their term *tradition*. They argued that all we need are *traditions* and *horizons* but later, Willey (1966) was forced to employ the term *subtradition*. I find that term awkward. I use the term *aspect* to specify a regional variant of a pattern.

Most archaeologists agree that there is an Anasazi Tradition, and that it begins with Basketmaker II derived from an older Oshara Tradition, and develops into the Pueblo cultures. However, Basketmaker II had no pottery, used the bow and arrow, lived in pit houses, and yet we put all of that into a single tradition. This is totally different from most of our other so-called traditions. They are actually patterns, based more on diffusion than on continuity through time. In the eastern United States, the difference between Archaic and Woodland is the introduction of pottery. There are at least two different sources of pottery, but the cultures become Woodland if they have pottery. Mississippian is a mess, but it's basically a religious movement that influenced totally unrelated cultures. Archaic, Woodland, and Mississippian are not traditions, but patterns (cf. Bennyhoff 1986:67).

I see an analogous situation in California. That is why Fredrickson and I introduced the term pattern. With the excavation of University Village (Gerow with Force 1968) and of West Berkeley, it became clear that the Bay region was occupied at a time contemporaneous with Early Horizon in the Central Valley. What I call the Windmiller Pattern is the old

Early Horizon of Beardsley. Windmiller features include a ventral extension burial mode, few bone tools, rare manos and metates, and non-midden cemeteries (see Ragir 1972). We now know on the basis of trade items (shell bead and ornament types, traded charmstones, etc.) that lower West Berkeley, the lower twelve feet, is contemporaneous with Windmiller but is a different culture. The Berkeley population had 100% flexed burial mode, many bone tools, used the mortar and pestle exclusively, and buried their dead within the village midden. I hypothesize that the lower twelve feet of West Berkeley is ancestral to Beardsley's Middle Horizon and submit that the early part (the Stege aspect) is without question ancestral to the Ellis Landing aspect as defined by Beardsley. What emerges is a movement from the north Bay region into the Cosumnes District at the beginning of the Middle period. This is the intrusion of the bearers of the Morse aspect (Bennyhoff 1978:figure 4) which derives many of its traits from the Ellis Landing occupants on the Bay.

I hypothesize that the Morse intrusion pushed the Windmiller people south into the Stockton District (already occupied by Windmiller people at such sites as SJo-112 and SJo-147). Stimulated by intermarriage, these migrants borrow Berkeley Pattern traits to form the Meganos aspect of the Berkeley Pattern. The Meganos culture is actually a hybrid. They retain Windmiller ventral and dorsal extension and semi-extension as important mortuary traits, but add semi-flexure and flexure, while rejecting western orientation. The Windmiller emphasis on non-midden cemeteries remains a dominant Meganos feature. Lack of interest in grave furniture is a Berkeley trait. Bone tools remain rare, and four sites yield more manos and metates than the borrowed mortars and pestles. A rarity of projectile points is also a Berkeley trait, in contrast to their abundance at Windmiller sites. So far the Windmiller baked clay industry is absent at Meganos sites in the south Delta. The extensive Early period shell bead trade from Southern and Central California out into Utah (Hughes and Bennyhoff 1986; Bennyhoff and Hughes 1987) is broken at this time of disruption. Early Meganos sites yield few shell beads and ornaments.

This Morse intrusion was a population movement, with abandonment of most Windmiller sites, and the founding of new sites closer to modern water sources. Newman (1957) proposes a mixture of an older population with new physical types.

In contrast, I hypothesize that the entire cultural sequence from 3000 B.C. to historic times in the Alameda District (San Francisco peninsula and East Bay) represents a single population changing through time. The physical type does not change and numerous cultural traits persist throughout this time span (spined serrated scapulae, type A1bII awls, wedges, cobble bowl mortars, and cobble pestles, etc.). In this district we have the Micos Tradition persisting through the Berkeley and Augustine patterns. The Micos Tradition (from Miwok-Costanoan) represents the ancestral Utian occupation of the San Francisco Bay region, displacing and pushing to the south an earlier Esselen population. If the Berkeley Pattern was brought in by ancestral Miwok and Costanoans before they split (the Stege aspect), the Upper Berkeley Pattern (Ellis Landing aspect) represents the split of Costanoan and Miwok: McClure aspect in the Marin District, Morse aspect in the Cosumnes District, Houx aspect on Clear Lake, etc.

I would now like to define basic traits of the Augustine Pattern, the Late Horizon of Beardsley (1948, 1954). We know that the Augustine groups are ancestral to the people in their respective territories. We know that: 1) the acorn provides the staple food, with mortar and pestle as the dominant grinding implement; 2) that hunting is significant, with bow and arrow as the major weapon; 3) fishing is significant, with harpoons as a major implement; 4) roundhouses made from variable materials are the dominant dwelling while the ceremonial dance house and sweat house were semi-subterranean; 5) the tule balsa was the major boat form inferable archaeologically by the absence of woodworking tools needed to make dugout canoes; 6) shamanistic religion was dominated by males, which featured the use of charmstones; 7) smoking of tobacco with tubular stone pipes, later replaced by wooden forms among some groups; 8) an exchange network which featured the use of distinctive beads and ornaments made of magnesite, steatite, and varied shells, notably clam, *Olivella*, and abalone; 9) a basketry complex which featured both coiling and twining; and 10) a host of material cultural items, such as the cocoon rattle, flicker quill headband, men's hair

net, acorn granary, and foot drum to name only a few. These traits are found among nearly all Central California groups.

I suggest that the Augustine Pattern begins in California with the introduction of a series of intrusive traits that come from the north, not from the south as Heizer (1937:39) once suggested. As outlined by Whistler (1977), I hypothesize that the Wintuan or specifically ancestral Patwin peoples moving from Oregon brought in a series of traits derived from the Macro-Algonkian (Algic) peoples, the ancestral Yurok and Wiyot, who displaced the Patwin from Oregon as they moved into California. The major traits are the simple harpoons which could not have come from any place to the south; they must be northern, probably from the Columbia River. What I call collared pipes (see figure 6.1 herein), the oldest ones in Central California, have an enlarged base which would not come from the simple conical forms of the American Southwest; the oldest Gunther Island pipes are similar. These are definitely smoking pipes. Since the tobacco that is grown and planted by some Plains groups is a California species, there has to have been interchange at this time involving tobacco and pipes. Non-illustrated pipes are dated to ca. 1000 - 1500 B.C. on the Columbia River by Butler (1959). What we call grave pit burning, in which the corpse is set afire and then the fire is smothered before burning is complete, is dominant in Central California beginning in this Middle/Late Period Transition but it also occurs on Gunther Island and one site on the Columbia River. Symmetrical perforated stone discoidals probably represent spindle whorls for making string for fish nets, indicative of an increasing emphasis on fishing. Another indication of a northern connection is brachycephally. Algonkian peoples were brachycephalic, and Newman (1957) suggested that there was an actual genetic introduction to the Central Valley population in the Late Horizon. The Patwin were able to penetrate an already settled California because they had a new weapon—the simple (self) bow and arrow, superior to the local atlatls. Arrows were tipped with Gunther Barbed points. All three base variants (contracting stem, straight stem, and expanding stem) are found at Yol-13 ca. A.D. 700, where many burials reveal points embedded in bones—clearly a conflict situation. With this new weapon the ancestral Patwin quickly passed down the Sacramento Valley to displace, and borrow terms for unfamiliar vegetation from, the resident Miwok. Patwin intrusion broke the original Miwok continuity from Marin County into the Delta, for they clearly pushed the Bay Miwok out of the Solano District south across Suisun Bay into the Diablo District. Evidence for this displacement includes a distinctive atlatl spur found at Sol-15 and CCo-308, the appearance of multi-perforated abalone ornaments, and the abandonment of Meganos aspect sites in the Diablo District as new Hotchkiss aspect sites are founded. To summarize, then, I see the beginning of the Augustine Pattern as a reflection of new traits being brought in by the intrusive ancestral Patwin peoples, followed by subsequent diffusion of these traits from them to all surrounding areas. There was, of course, differential acceptance of these various traits.

I will now contrast the Augustine Pattern with the Gunther Pattern, typical of northwest California, which I believe the available archaeology indicates was first introduced by the Macro-Algonkian immigrants from the Columbia River. The principal traits of the Gunther Pattern are: 1) salmon provided the staple food, taken with distinctive harpoons and weirs (several of the harpoon types can be traced to the northwest coast); 2) land hunting was significant, with the simple bow and arrow as the major weapon (the Gunther Barbed projectile point series was brought in by the Macro-Algonkians and diffused from them southward); 3) a coastal emphasis on sea mammal hunting with distinctive harpoons; 4) the rectangular plank house, with a distinctive woodworking assemblage; 5) the dugout canoe reflected archaeologically by the adze, gouge, and maul, 6) exclusive dorsal extension burial mode; 7) shamanistic religion dominated by females who did not use charmstones; 8) a distinctive wealth emphasis which featured inheritance of property; 9) an exchange network which emphasized dentalia, glycymeris, and pine nut beads; 10) a basketry complex which featured twining only; and 11) varied material culture items, such as antler spoons, elk horn purses, incised head scratchers, lamprey slitters, and eyed thatching needles. The aspects are merely regional variants of this overall pattern.

I will illustrate the sharper contrasts (i.e. how aspects can be identified within patterns) by using just

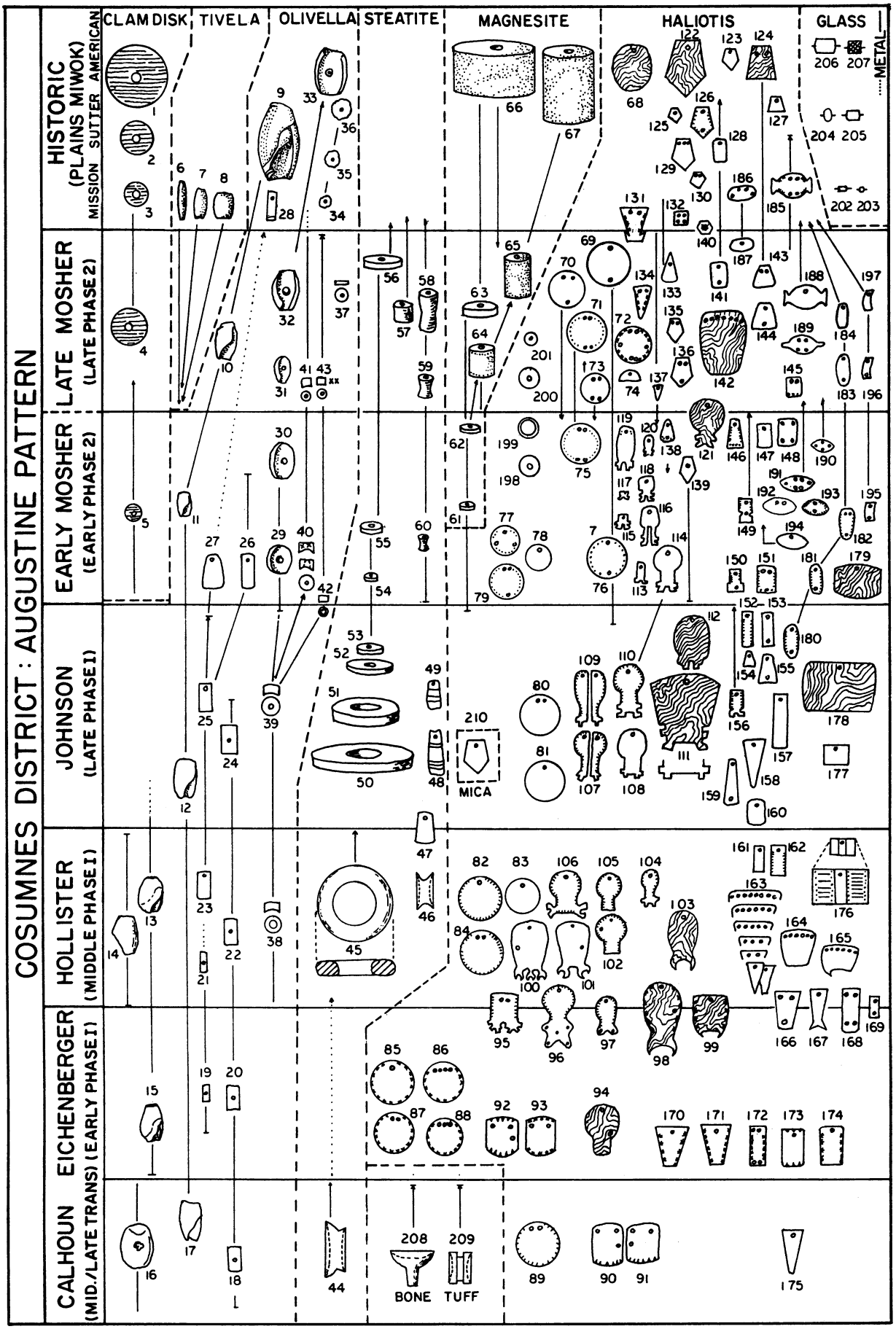
COSUMNES DISTRICT: AUGUSTINE PATTERN
HISTORIC (PLAINS MIWOK) MISSION SUTTER AMERICAN
LATE MOSHER (LATE PHASE 2)
EARLY MOSHER (EARLY PHASE 2)
JOHNSON (LATE PHASE 1)
HOLLISTER (MIDDLE PHASE 1)
EICHENBERGER (EARLY PHASE 1)
CALHOUN (MID./LATE TRANS)
CLAM DISK
TIVELA
OLIVELLA
STEATITE
MAGNESITE
HALIOTIS
GLASS
METAL
MICA
BONE
TUFF

FIGURE 6.1 Late period, Augustine Pattern, Hollister aspect, Cosumnes District: Significant artifact types and temporal changes in stone and bone artifacts from Calhoun phase (Middle/Late Period Transition) through Mosher phase (Phase 2). Relative scale approximated only for projectile points. Position of specimens within each phase has no chronological significance except for arrow points. M= trait persists from Middle period.

1-59, **Chipped stone**: 1-18. Spear points (all obsidian except 4, 18): 1. Corner-notched; 2. Side-notched, pointed serration; 3. Stockton serrated, corner-notched; 4. Desert Side-notched ceremonial (chert, obsidian, bone); 5. Side-notched straight-base; 6. Contracting stem barbed, pointed serration; 7. Stockton serrated, shouldered, straight stem; 8. Desert Side-notched, ceremonial; 9. Barbed, straight stem dentate serration; 10. Shouldered, expanding stem; 11. Stockton serrated shouldered round stem; 12. Stockton serrated corner-notched; 13. Stockton serrated shouldered straight stem; 14. Leaf-shaped; 15. Straight stem, wavy serration; 16. Leaf-shaped wavy serration; 17. Side-notched, concave base; 18. Corner-notched, chert; 19. Shouldered, chert; 20-22. Shouldered dart points (all non-obsidian). 23-58. Arrow points (all obsidian except 26, 31-33, 56, 58). 23-24. Stockton Leaf-shaped; 25. Stockton Triangular; 26. Shouldered straight stem, chert; 27-28. Shouldered, straight stem; 29-30. Shouldered, expanding stem; 31-35. Desert Side-notched; 31-33. Non-obsidian; 31. Panoche variant; 32-33. Delta variant; 34. Denticulate serration; 36-37. Stockton Side-notched; 38. Barbed, straight stem; 39. Shouldered, straight stem; 40-55. Stockton Serrated (SS) series, all obsidian. Number of serrations becomes fewer through time. 40-43. SS Bipointed; 44. SS Side-notched; 45-49. SS Shouldered, expanding stem; 50-53. SS Corner-notched; 54, 55. SS Shouldered; 56. Corner-notched, one serration, chert; 57-58. Gunther Barbed, non-obsidian; 59. Barbed, straight stem, dentate serration; 59A. Stockton serrated obsidian claw; 60. Fired clay bird effigy; 61-68. **Polished and ground stone**; 61-62. Charmstones (rare occurrences); 63. Show mortar (type A3) rare; 64-66. Stone pestles. 64. Type B2, rare; 65. Type B1, rare; 66. Type D3, used in wooden mortar, typical through Late period; 67. Wooden mortar; 68. Perforated stone discoidal; 69-73. **Bird-bone whistles**; 69-71. Central stop on concave side; 72-73. Central stop on convex side; 74. Antler shaft straightener; 75-87. **Steatite tubular pipes** with bird bone mouthpiece; 75. Double-flanged base; 76. Double-flanged shaft; 77. Single-flanged shaft; 78. Flared base, single flange; 79, 80. Triple-flanged base; 81. Single-flanged base; 82. Narrow collared base; 83. Flared base; 84. Wide collared base; 85-87. Collared; 85. Wide false-collared base (white sandstone); 86. Bell collared base; 87. Constricted collar base; 88. Girdled clay net sinkers in graves; 89. Wooden fish hook (barb and shank); 90. Toggle harpoon; 91-96. Simple harpoon, antler (bone); 91-95. Bilateral line shoulders; 91. Triple opposed barbs; 92. Triple-staggered barbs; 93. Multiple opposed barbs; 94. Four opposed, enclosed barbs; 95. Four opposed isolated barbs; 96. Unilateral line shoulder, multiple opposed barbs; 97. Composite fish hook (bone barb, wood shank); 98-103. **Incised bird-bone tubes and whistles**; 98. Double-line style, ladder design; 99. Double-line style, zig-zag design; 100. Double-line style, open diamond design; 101. Double-line style, chevron design; 102. Triple-line style, diamond design; 103. Triple-line style, triangle design; 104. Incised solid pin. NOTE: All captions are those of J. A. Bennyhoff except 11, 75-87, 99-104, provided by R.T. Milliken.

a few traits from the Central California Delta region. I will contrast the Hollister aspect of Cosumnes District which was clearly ancestral Plains Miwok (see figures 6.1 and 6.2 herein) with the Stockton District which was clearly ancestral Northern Valley Yokuts and the Hotchkiss aspect of the Diablo District which also was clearly ancestral Bay Miwok (cf. Bennyhoff 1978:figure 6).

First of all, the mortars differ among all three groups: wooden mortars with communal ownership in the Cosumnes District, small stone mortars owned individually (they were buried with the female dead) in the Stockton District, while the Diablo District had what we call elaborate "show" mortars, again owned individually (any wealthy woman was buried with at least one of them). The pestles also differ. In the Cosumnes District

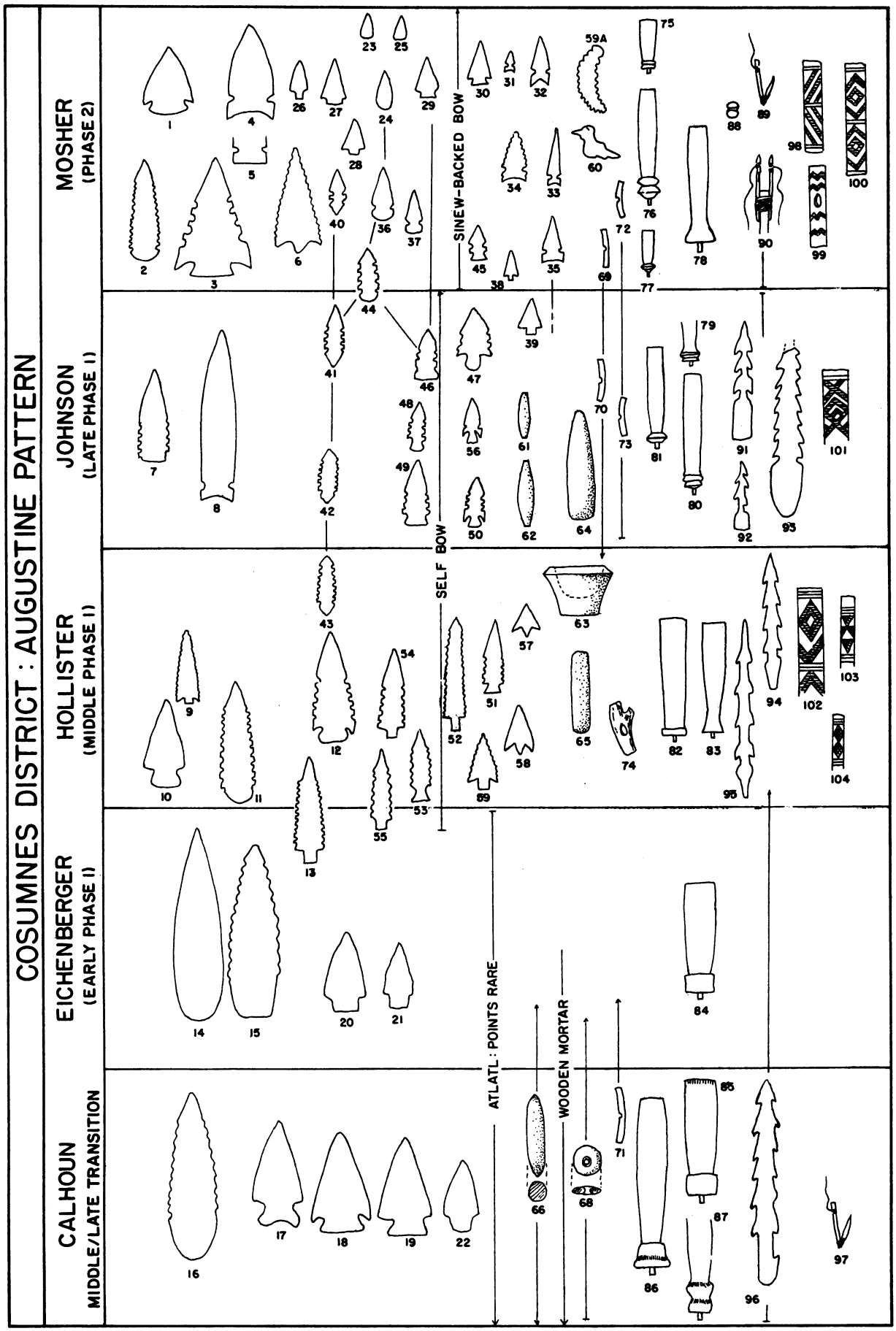
COSUMNES DISTRICT : AUGUSTINE PATTERN
CALHOUN
MIDDLE/LATE TRANSITION
EICHENBERGER
(EARLY PHASE I)
HOLLISTER
(MIDDLE PHASE I)
JOHNSON
(LATE PHASE I)
MOSHER
(PHASE 2)
ATLATL : POINTS RARE
WOODEN MORTAR
SELF BOW
SINEW-BACKED BOW

FIGURE 6.2 Late period, Augustine Pattern, Hollister aspect, Cosumnes District: Significant artifact types and temporal changes in beads and ornaments from Calhoun phase (Middle/Late Period Transition) through Historic. Beads drawn to scale (averages shown), but ornament size only approximated. Position of specimens within each phase has no chronological significance.

1-5, **Clam disk beads**: 1, Type A3 (>16 mm); 2, Type A2 (9-16 mm); 3, Type A1 (3-8 mm); 4, Type A2; 5, Type A1. 6-8, Tivela beads: 6, tube; 7, ovoid; 8, globe; 9-43, **Olivella beads**: 9, Type A1c "large spire-lopped" predominates, with A1b, A1a present; 10, Type A1b "medium spire-lopped" and A1c predominate, with A1a present; 11, Type A1c "small spire-lopped" with A1b present; 12, Types A1c and A1b predominate, with A1a present; 13, Type B2 "end-ground"; 14, Type B1 "side-ground"; 15, Type B2; 16, Type D "split punched"; 17, Types A1b and A1c "spire-lopped" predominate, with A1a present; 18, Type M1a "normal sequin"; 19, Type M1c "narrow sequins"; 20, Type M1a; 21, Type M1c; 22, Type M1a; 23, Type M2a "normal pendant"; 24, Type M1a; 25, Type M2a; 26, Type M2a; 27, Type M4 "trapezoid pendant"; 28, Type M3 "elongate pendant"; 29, Type E1a "round thin lipped"; 30, Type E1b "oval thin lipped"; 31, Type E2a, "full lipped"; 32, Type E2b "deep lipped"; 33, Type E3 "large lipped"; 34, Type H1b "semi-ground disk"; 35, Type H2 "rough disk"; 36, Type H3 "chipped disk"; 37, Type H1a "ground disk"; 38, Type K1 "cupped"; 39, Type K1; 40, Type K1; 41, Type K2 "bushing"; 42, Type K3 "cylinder"; 43, Type K3; 44-60 **Steatite**: 44, earspool; 45, thin ring bead, includes cross-section; 46, earspool; 47, pendant, trapezoidal; 48-49, incised pendants; 50-51, thin ring beads; 52-56, disk beads; 57, cylinder bead; 58-60, "hourglass" beads; 61-67 **Magnesite**: 61-63, disk beads; 64-67, cylinder beads; 68-197 **Haliotis ornaments**: 68-70, circular; 71, circular, punctate decoration; 72, circular, scored incision; 73, circular; 74, semi-circular; 75-77, circular, punctate decoration; 78, circular; 79, circular, punctate decoration; 80-81, circular; 82-84, circular, scored incision; 85-88, circular, heavy scored incision; 89, circular, scored incision; 90-91, "shield", scored incision, often paired; 92-93, "shield", heavy scored incision; 94, "spoon"; 95, "square-clawed", incised; 96-97, "claw" variants; 98, "horn", scored incision, often paired; 99, "horn" variant, scored incision; 100-101, "claw" variants, often paired; 102, "spoon", scored incision; 103, "horn"; 104, "banjo" variant; 105, "spoon", scored incision; 106, "claw" variant; 107, split "banjo" variant, scored incision; 108, "banjo"; 109, split "banjo" variant, scored incision; 110, "banjo", scored incision; 111, "banjo" gorget, from whole shell (140 x 118 mm); 112, incipient "banjo" gorget; 113, "key" variant; 114, "banjo"; 115-20, "banjo" variants; 121, "banjo" gorget variant; 122, pentagonal gorget, made with file; 123, pentagonal, made with file; 124, trapezoidal, made with file; 125-30, various ornaments; 131, triangulate, scored incision; 132, square; 133, triangular; 134, triangulate, scored incision; 135-137, various ornaments; 138, triangular, punctate decoration; 139-41, various ornaments; 142, gorget, rounded trapezoid; 143-44, truncate; 145, square, with punctate decoration; 146, truncate, with scored incision and punctate decoration; 147-48, rectangular; 149, "key", side-slotted, scored incision; 150, "key", t-shaped, with scored incision; 151-52, rectangular with scored incision; 153-55, various ornaments; 156, "key", side and basal slotted with scored incision; 157-62, various ornaments; 163-65, triangulate, various sizes, including multi-perforated and squared tip variants (worn as girdle); 166-69, various ornaments; 170-74, various ornaments with heavy scored incision; 175, triangulate; 176, rectangular with scored and punctate decoration (32 x 55 mm); 177, rectangle; 178, rectangular gorget; 179, curved rectangular gorget; 180-82, oval with scored incision; 183-84, oval; 185, eared lenticular, scored incision; 186-187, broad oval; 188, eared lenticular; 189, tabbed lenticular; 190-94, simple lenticular; 195-97, rim segments; 198-201 **Haliotis beads: 198**, nacrous disk; 199, nacrous ring; 200-201, epidermis disks (H. rufescens); 202-205 **Glass beads**: 202, small tubular; 203, small oblate-spheroid; 204, large oblate-spheroid; 205, large tubular; 206-207 **Metal beads**: 206, rounded steel; 207, faceted steel; 208-210 Miscellaneous materials: 208, bone labret or earplug (also steatite); 209, volcanic tuff earspool; 210, mica pendant. NOTE: Captions provided by R. T. Milliken from notes of J. A. Bennyhoff.

they were bipointed stone pestles used with wooden mortars. In the Stockton District they were simple stone forms, essentially conical, probably obtained from the Sierra foothills, while in the Diablo District they were elaborate carved forms despite the fact that the Hotchkiss site is in the stoneless Delta. The Hotchkiss women had to carry all of this stone at least twenty miles from the Diablo Hills into the Delta. The extensive baked clay industries of the stoneless Stockton and Cosumnes districts are quite similar, but Hotchkiss has no such industry even though it is located well into the Delta. Each district also has its own distinctive style of incised bone tubes and whistles: openwork style in Cosumnes (figure 6.3 herein), crisscross style in

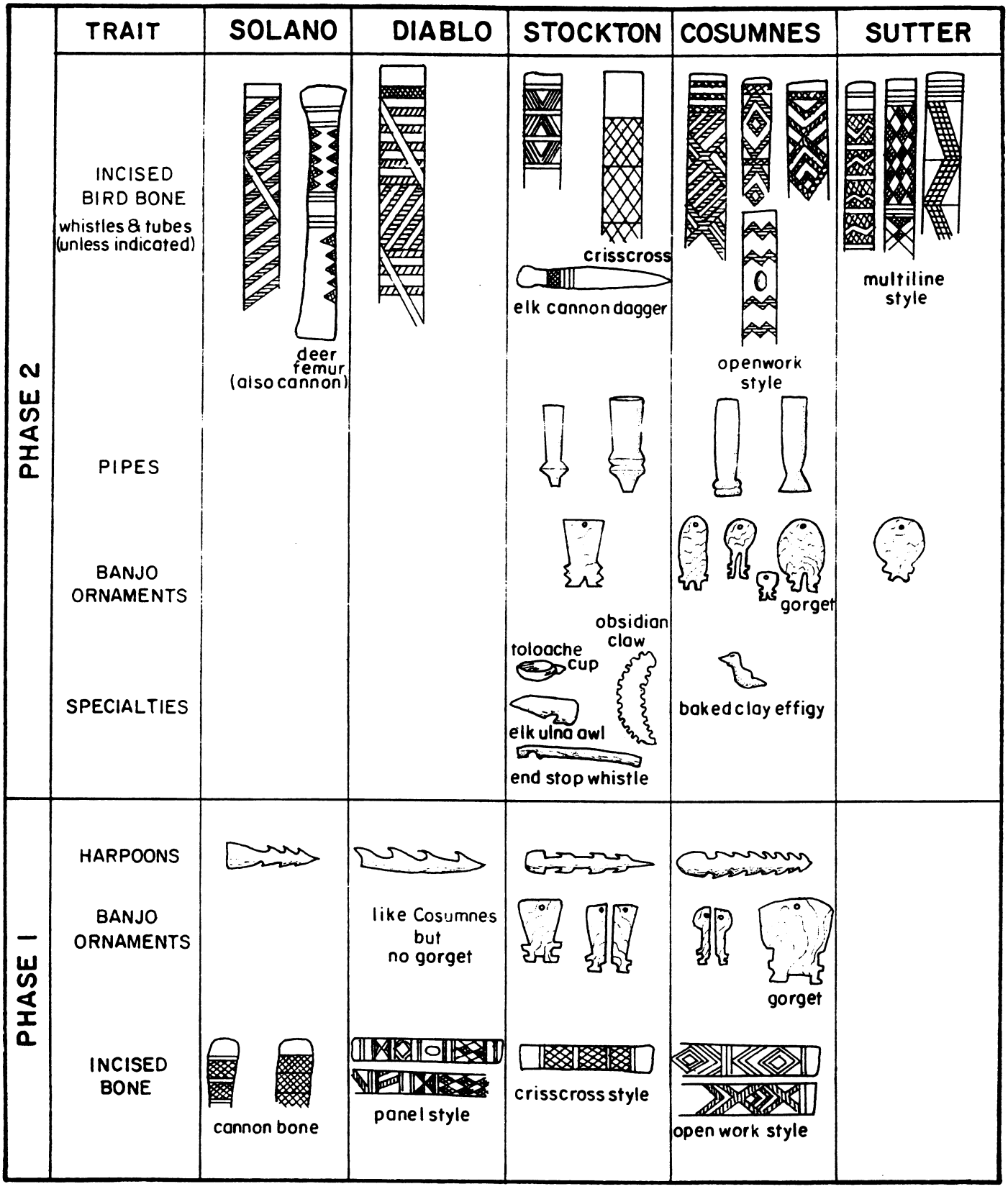

FIGURE 6.3 Selected artifact types and incising styles diagnostic of the Solano, Diablo, Stockton, Cosumnes, and Sutter districts during the Late period.

Stockton, and panel style in Diablo (cf. Bennyhoff 1978:figure 6). These contrasts are just a few that could be mentioned which set aspects and districts apart from one another. The relationship of these districts to one another, within the framework of the CCTS, appears in figure 6.4.

Aspects exhibit core areas, generally near the center of the district. Peripheral villages often show a shadow effect, reflecting borrowings from an adjacent district. Thus the Seuamne, the easternmost Plains Miwok tribelet living in the foothills on the Mokelumne River (Bennyhoff 1977:113), borrowed the bedrock mortar from their Sierran neighbors. In the Sutter District, inhabitants of the Wolok tribelet center at the mouth of the Feather River preferred to construct the grass thatch dwellings of the Delta rather than the semi-subterranean earth lodge typical of the Sutter District. Care must be taken to distinguish trade items or artifacts introduced by intermarriage. The incised elk cannon hair pin/dagger (Gifford 1940:Type B4) is a typical Yokuts (Stockton District) artifact. The single specimen found at SJo-43, a Plains Miwok village on the Mokelumne River, probably represents a Yokuts/Miwok intermarriage—no typologically similar forms have been found on the Cosumnes River (Sac-6 contained numerous bone artifacts) or American River.

So, for the Augustine Pattern, I would use the direct historical approach and invoke an ethnographic model which does provide us with all of the perishable items that we will never find archaeologically. I propose that Wintu and even Shasta do fall within the Central California culture area and that the archaeological variants that we find in these areas are merely aspects of the Augustine Pattern and not new patterns in themselves. I also object vociferously to calling the Shasta Complex by the term Shasta, because once we dig in Shasta territory we're going to find a quite different culture. Consequently, I suggest that the Shasta Complex should be called the Redding aspect of the Augustine Pattern. I find every trait listed by Sundahl (1982) for the Shasta Complex to be compatible with the Augustine Pattern. The houses are conical in shape, not rectangular. Bark covering occurs in both the Coast Ranges and the Sierra. Burials were flexed, not extended. The distinctive features that do distinguish it from Central California are those that represent influence from the Gunther Pattern. These are a late overlay and represent borrowings from the west. The Gunther Barbed series point, for example, has been traded as far south as Sonoma and Sacramento counties (Jackson and Schulz 1975). Using evidence from such sites as Yol-13 at the mouth of the Feather River, I hypothesize that the Gunther Barbed series were the first arrow points introduced into the Central Valley, that they came ultimately from the Columbia River, and were brought in by the Patwin who were being pushed south by the ancestral Yurok and Wiyot. Gunther flanged pestles appear in late complexes in the interior. Hafted knives for fishing are a typical Gunther Pattern trait. Dentalium beads obviously come from the northwest coast. These I see as representing Macro-Algonkian introductions. However, some traits must have been introduced later by the Athabascan intrusion, which I place around A.D. 1300. Specifically, the toggle harpoon is later than the simple harpoon, and it replaces the simple harpoon in the Sacramento Valley and Delta areas. Athabascan intrusion was possible because they, too, had a superior weapon—the sinew-backed bow—as did the Navajo-Apache. The arrow shaft smoothers were probably brought in by the Athabascan intrusion. To judge from one Del Norte County coffin burial, entering Athabascans buried the dead in a semi-flexed position, and adopted the Algic dorsal extension in the historic period.

In conclusion, much more excavation and analysis are needed to resolve these taxonomic problems. In particular, the contemporaneity and greater meaning provided by grave lots are essential to 'aspect' definition. As defined by Willey and Phillips (1958), there should be few patterns; variation can be handled by multiple aspects.

FIGURE 6.4 CENTRAL CALIFORNIA TAXONOMIC SYSTEM