**Supplement 3: Analytical Methods and Sampling**

 We analyzed 655 samples of Chihuahuan Polychrome ceramics from 31 sites by instrumental neutron activation analysis or INAA (Table 1). The analyses were conducted at what was then called the Smithsonian Center for Materials Research and Education, in collaboration with the research reactor facility at the National Institute for Standards and Technology. (For a detailed description of sample processing and analytical and statistical procedures see Blackman 1986; Glascock 1992; Triadan 1997:26-29). Samples were taken from the extensive surface collections of Gila Pueblo which were collected mostly by E. B. Sayles in 1933, sherds excavated by Charles Di Peso’s project from room floors at Paquimé, and surface collections from sites classified as large and very large by the Paquimé Regional Project (Whalen and Minnis 2001:124-125). The collections made by Sayles came from an extensive area in northwestern Chihuahua and southwestern New Mexico and are today at the Arizona State Museum. Even though the collections are fairly old, and, apart from Paquimé, it is difficult to determine the exact locations of the collected sites, the sites can be attributed to 7 1/2 minute topographic map quadrangles. All site designations are based on a principal 15 minute topographic map quadrangle (alphabetical indicator) and sixteen 7 ½ minute topographic maps (first numerical indicator) within the 15 minute quadrangle. The 7 ½ minute quadrangles are ordered from left to right, top to bottom, and numbered 1 through 16. Within the respective 7 ½ minute quadrangle, sites are then numbered consecutively. Thus, Chih I:9:1 refers to the 15 minute quadrangle designated by the letter I and the 9th 7 ½ minute quadrangle, and it was the first site recorded in that quadrangle. GP means Gila Pueblo and shows site numbers recorded by Gila Pueblo. Sayles used the Gila Pueblo system. ASM means Arizona State Museum, which uses the same basic site recording system, but in the case of Chihuahua the Arizona State Museum changed the alphabetical designation of the 15 minute quadrangles. So the quadrangle that was defined as Chih A by Gila Pueblo is now AZ EE in the Arizona State Museum system (which Di Peso used), and sites recorded after about 1950 use the ASM system. This resulted in a shift of the alphabetical quadrangle designations of basically one letter to the left or west. Thus, Sayles calls Paquimé Chih E:9:1 and Di Peso calls the same site Chih D:9:1. Samples from the Sayles collections were chosen to represent the boundaries of the high distribution area of Chihuahuan Polychromes, as well as the core zone around Paquimé and from Paquimé itself (see Table 1, Supplemental Figure 2).

 A majority of samples (n=288) came from Paquimé (see Supplemental Table 1). The sherds from the Di Peso Paquimé excavations were all from floors of specific rooms. We sampled all the room blocks (or units after Di Peso’s terminology) that were excavated (Supplemental Table 1). Samples from the Paquimé Regional Project came from four sites classified originally as very large (>8000 m2) by Whalen and Minnis (1995). Following their newer site size categories (Whalen and Minnis 2001:124-125) two of the sampled sites (94-346 and 95-484) are now classified as very large and the other two (94-316 and 95-507) as large (Supplemental Table 1). All four sites are in the Casas Grandes River valley (Figure 4). Sites 94-316 and 94-346 are located south of Paquimé in what they call the Inner Zone and sites 95-484 and 95-507 in the Middle Zone of regional interactions close to the modern town of Janos (Whalen and Minnis 2001: 86-87, Figure 3.15). In keeping with the observations we made above (Supplement 2), Villa Ahumada Polychrome is relatively rare in all of these collections and therefore we analyzed relatively few samples of this pottery.

We also carried out two raw materials surveys, one in 2000 and one in 2002. In the first survey we concentrated on sampling light-firing secondary, alluvial clays. We surveyed an area of approximately 50 km2 (Figure 4). Our sample included clays that were used by potters Manuel Olivas, Manuela Dominguez, as well as Juan Quezada and other potters from Mata Ortiz (see Supplemental Table 2). After we analyzed a few of these source clays with INAA we realized that, in contrast to the prehistoric sherds, almost all of them were highly calcareous, which led us to believe that the prehistoric potters may have used primary residual clays to make polychrome ceramics. Thus, we conducted a second raw materials survey, this time concentrating on primary clays in geological formations within about seven 7 km of Paquimé. (This follows Arnold’s [1985:50] cross-cultural ethnographic observations about how far traditional potters go to obtain lays). We collected a total of 75 clay samples during the two surveys (Supplemental Table 2). We then carried out physical property tests on all samples to assess their workability and firing performance to evaluate if they could have been used to make pottery (Rice 1987:60-71, see Triadan 1997:22-24 for a detailed description of the methodology of the experiments). Clays that were identified as not workable and/or that failed during the firing experiments were excluded from the compositional and petrographic analyses. Thus we analyzed 66 clay samples by INAA and 22 by petrography (Supplemental Table 3).

**Additional References not in main reference section**

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