The Novelist, the Professor, and the Paintings:
Erle Stanley Gardner, Clement W. Meighan, and Baja California’s Great Murals

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Abstract

In 1962, 37-year-old UCLA professor Clem Meighan joined the famed 72-year-old novelist Erle Stanley Gardner to collaborate in a venture to document and study the Great Mural pictographs in central Baja California’s Sierra de San Francisco. Their investigations touched off a florescence of interest in the paintings during the decades that followed. The two men’s innovations and their varied approaches to the subject highlight still-pertinent themes in the peninsula’s evolving prehistoric archaeology, including problems of discovery, description, analysis, speculation, and evidence-based interpretation.

The Novelist and the Professor

Erle Stanley Gardner (1889–1970)

Gardner was an extremely prolific writer (Figure 1). During more than half a century, he published scores of novels, along with short stories and travel accounts, both under his own name and using at least 11 different pseudonyms. His best-known protagonist was the lawyer Perry Mason, the subject of novels, Hollywood films, and popular radio and television series. Gardner’s obituary in the New York Times described him as the best-selling American author of the twentieth century (Krebs 1970).

In 1962 Gardner and his friends had already been exploring remote areas of Baja California for more than a decade. Chasing “a pet theory of mine about a tribe of abnormally large Indians” (Gardner 1962a:60), Gardner and his party flew by helicopter into a mountain village in the Sierra de San Francisco, lying within what was then the Territorio Sur de Baja California. They traveled on burros with local guides to one of the Great Mural sites. Gardner determined to return soon for a more extensive investigation of his discoveries.

The follow-up expedition, sponsored by the novelist and authorized by Mexico’s Instituto Nacional de Antropología e Historia (INAH), was launched in March and April 1962. It involved the use of “two helicopters, two camping vehicles, two pickup trucks, a four-wheel-drive station wagon and four Burritos (compact scooters ideal for short jaunts over tough terrain)” (Gardner 1962a:63). Now included in Gardner’s 17-person crew were Life magazine photographer Nat Farbman and UCLA anthropology professor Clem Meighan.

Over the next three days, Gardner and his colleagues identified nine Great Mural rock shelters. Four of the sites were examined on the ground and recorded in detail (Figure 2). Those sites included Gardner Cave (which was initially termed Cave Number One by Meighan and has subsequently been more generally known among archaeologists and local residents as Cueva Pintada) (Figure 3), Flechas Cave (Cueva de las Flechas), Palmarito (which Gardner and Meighan mistakenly identified as Léon Diguet’s [1895] “Palmarito” site, according to Crosby [1997:100–102],

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but which has subsequently been known under the name of Cueva del Ratón) (Figure 4), and Pájaro Negro (subsequently designated as Cueva de la Soledad). The other five sites were photographed from a helicopter as the observers scanned the canyon walls; these included Santa Marta, which seems to have been Diguet’s Palmarito and later observers’ Cuesta del Palmarito. (For the sake of clarity, the designations of Cueva Pintada, Cueva del Ratón, Cueva de la Soledad, and Cueva de la Cuesta del Palmarito rather than Gardner and Meighan’s names for those sites will generally be followed here.) Gardner and Meighan were fortunate in being able to include the previously unreported Cueva Pintada within their sample of Great Mural sites; according to Crosby (1997:69), that site “exhibits about three times as many clear, well-preserved figures as any other location.”

Gardner published an account of the expedition’s findings in a Life article soon afterward, reaching an audience of millions (Gardner 1962a). He amplified this account with additional photographs of the paintings in a travel book, The Hidden Heart of Baja (Gardner 1962b). Although his publications stressed the adventurous aspects of reaching and traveling within the remote region, he included considerable description of the rock art discoveries and some personal, admittedly nonprofessional, speculations concerning the paintings’ meanings.

University of Florida professor William C. Massey, who was then Baja California’s leading archaeologist, reviewed Gardner’s book in American Anthropologist. Massey (1964:954) acidly and perhaps unfairly asserted that “the writing style equals the author’s knowledge of archaeology … naive to the point of being pitiable” and decried the book’s “disorganized thinking, banal philosophies, and inconsistencies.” Meighan (1965a) jumped to his sponsor’s defense, criticizing the academic journal’s decision to include a review of a nonprofessional’s popular travel book.

A bizarre aftermath to Gardner’s venture into Baja California archaeology occurred two years later. According to the novelist’s biographer, a warrant was issued for his arrest on charges that he “had been stealing archaeological treasures from Baja and … had used bulldozers to destroy valuable archaeological sites” (Hughes 1978:273). The Mexican government subsequently withdrew the charges and apologized, but Gardner’s travels to the peninsula were curtailed for several years.

Clement Woodward Meighan (1925–1997)

Meighan (Figure 5) served as professor of anthropology at the University of California, Los Angeles, from 1952 to 1991. His fieldwork included investigations in California, Utah, Arizona, Mexico, Belize, Costa Rica, Chile, Guam, Nubia, and Syria (Dillon and Boxt 2005). Particularly notable were his contributions toward unraveling the prehistory of southern California.

Figure 1. Erle Stanley Gardner in 1966. Photo by John Atherton, Wikimedia.
Figure 2. Central Baja California and the main Gardner-Meighan Great Mural sites in the Sierra de San Francisco.

Figure 3. View of Cueva Pintada (Gardner Cave). Photo by Harry W. Crosby, previously published in Crosby (1997) and reproduced with permission.
Gardner recruited Meighan, whom he had not known previously, to join the follow-up expedition to the Great Murals. According to the novelist, Meighan “was one of the most human of human beings I have ever met … so tremendously excited he could hardly contain himself, he never lost his sense of humor or was the least bit self-important or stuffy” (Gardner 1962b:184). The archaeologist himself wrote of the experience:

This was a fabulous offer, since it was giving me an organized expedition.... In the ordinary course of events, it would have taken months of preparation and many thousands of dollars to set up such a research trip, and here I was able to leave in a few days on a completely planned and thoroughly worked-out expedition, even including helicopters necessary to reach the remote canyons rapidly [Meighan 1965b:18].

He described the trip as “an unbroken fiesta” and “about as close to heaven as a scholar can get” (Meighan 1969:14, 16). His duties, apart from obtaining the required permit from INAH, were entirely focused on research. The archaeologist had only a few days for his fieldwork. However, he was able to document the paintings of four rock shelters in varying degrees, including making an inventory of 241 anthropomorphic and zoomorphic images, as well as collecting or excavating 131 artifacts (all but four of them from Cueva Pintada), including flaked and ground stone, ceramics, bone, wood, fiber, and cordage, as well as marine shell. After the artifact collection’s analysis, it was delivered to the Museo Nacional de Antropología in Mexico City.
Meighan reported his findings and discussed his analysis and interpretation in three publications: a popular account in *Desert Magazine*, a more academic discussion in *American Antiquity*, and a small book that reproduced much of the *American Antiquity* article with some new illustrations and substantial additional information and comments on a few topics (Meighan 1965b, 1966, 1969). He also later discussed analytical methods and applied some of his data from Cueva Pintada in a co-edited book of student seminar papers on non-Great Mural aspects of Baja California rock art (Meighan 1978).

One subsequent investigator described Meighan’s study as having very little substance (“*de muy escasa sustancia*”; Hambleton 1979:10). However, as discussed below, that characterization does not appear to be justified. Although later researchers were able to put in many more days of fieldwork and to marshal evidence from a great many additional Great Mural sites, they have only rarely matched Meighan’s critical and analytical rigor.

**Discovering the Murals**

A still-prevalent popular misconception is that Gardner was the first to report the Great Murals to the outside world. In actuality, accounts of the spectacular, life-sized or larger, multicolored paintings in central Baja California’s remote rock shelters had been published nearly two centuries earlier, thanks to the inquiries of two Jesuit missionaries, José Mariano Rotea and Francisco Escalante (Clavigero 1789; Barco 1973). The specific sites and even the general locations that the Jesuits visited cannot be identified with complete certainty on the basis of their sparse descriptions. Escalante was stationed at the mission of Santa Rosalía de Mulegé, and his observations were likely made in the Sierra de Guadalupe. Harry Crosby (1997:113) reasonably argued that Escalante’s Great Mural rock shelter was probably San Borjitas, a relatively accessible site and one that would subsequently be widely visited and studied, including a later visit by Gardner. Rotea was stationed at San Ignacio, and the rock shelters that he saw may well have been in the Sierra de San Francisco.

More detailed descriptions were made in the 1890s by a French naturalist, Léon Diguet (1895, 1899; Grant 1974). He recorded 30 rock art sites scattered throughout the central and southern portions of the Baja California peninsula. By Meighan’s (1966:377) estimate, about eight of the 30 were Great Mural sites. They included San Borjitas and other sites in the Sierra de Guadalupe, as well as Cueva de la Cuesta del Palmari-to and Cueva del Ratón in the Sierra de San Francisco.

Additional information on Great Mural sites was published in the mid-twentieth century, prior to Gardner’s visits. In 1926, Edward H. Davis, a collector who supplied American museums with ethnographic and archaeological specimens, visited and photographed San Borjitas, but he only published the results of the visit more than two decades later (Davis 1949). In 1950–1951 San Borjitas was again visited, first the Mexican journalist Fernando Jordan and then, under the auspices of INAH, by the Swedish-Mexican anthropologist Barbro Dahlgren de Jordan and the Mexican anthropologist Javier Romero Molina (Jordan 1950, 1951; Dahlgren and Romero 1951; Dahlgren 1954). Dahlgren and Romero carried out excavations and reported on the site in detail.

Gardner himself somewhat exaggerated the uniqueness of his finds, at least initially in *Life* magazine. He wrote that “our discoveries were made in a part of Baja California so primitive that it apparently had never before been explored by outsiders” and “until we discovered these caves, scientists knew virtually nothing about this long-lost race,” ignoring the contributions of Diguet, Massey, and others (Gardner 1962a:56). In *The Hidden Heart of Baja*, however, probably with Meighan’s coaching, he acknowledged the previous discoveries made by the Jesuit missionaries and Diguet.
Both before and after his own fieldwork, Meighan had sought out records of previous studies. He acknowledged several previous reports on the Great Murals at San Borjitas and noted Diguet’s visits to Palmarito and other sites in the Sierra de San Francisco (Meighan 1969:19, 20, 24). However, on seeing photographs from Gardner’s initial foray, “it was clear immediately that a most important new site, apparently never before reported, had been found” (Meighan 1965b:18).

After Gardner’s publications appeared, other Baja California aficionados began to send Meighan their unpublished reports and photographs of rock art sites in the peninsula’s central sierras. Meighan was able to take into account some of that information in his *American Antiquity* article, which noted that “at least nine additional caves are known to contain paintings of the same sort … there may well be over 100 undescribed sites of this kind” (Meighan 1966:380). Reports on the Great Murals also soon came from some of Gardner’s other traveling companions, including Choral Pepper (1964) and Ricardo Castillo Escobar (1967).

Much more extensive and systematic inventories of Great Mural sites were carried out in the 1970s and later by Harry W. Crosby (1975, 1997), who originated the designation “Great Murals” for the style, by Enrique Hambleton (1979), and by INAH archaeologists Baudelina Lydia García Uranga and María de la Luz Gutiérrez, among others (cf. Gutiérrez and Hyland 2002). Nonetheless, it had been Gardner who first captured the attention of a wide audience through his *Life* magazine article and photographs, and it had been Meighan who initiated more systematic, critical studies of the paintings and their implications for the region’s prehistory.

**Documenting the Murals**

The techniques and strategies employed in documenting and analyzing the Great Murals have evolved through time. Gardner and Meighan sometimes broke new ground for Baja California archaeology in the ways in which they documented the Great Mural sites.

**Reaching the Sites**

The Great Murals are located on what has sometimes been called “the forgotten peninsula” (Krutch 1961), within rugged mountain canyons that are remote from the peninsula’s main travel routes. Reaching them has posed challenges that visitors have generally met by traveling on the backs of burros, on horseback, or on foot. Little is known about how Rotea, Escalante, and Diguet conducted their travels in the region. Davis reached the comparatively accessible site of San Borjitas from the Gulf of California coast by mule, and Dahlgren and Romero made the same trip by jeep and on horseback.

Gardner’s 1962 expeditions were able to reach the general vicinity of the murals through a judicious combination of air travel and travel employing four-wheel-drive vehicles, Burrito scooters, and burros. However, accessing the sites themselves still generally had to be done on foot. For that final leg, according to Gardner (1962b:207), “it soon became apparent that making anything like regular trips up to [Cueva Pintada] would be a major undertaking as far as the climbing was concerned. It was possible to work one’s way up by a circuitous route, but that was a time-consuming effort.” In what was presumably an innovation in Great Mural studies, two experienced mountaineers on Gardner’s crew established rope lines to enable the party to scale the steep cliff directly.

One of Gardner’s innovations that seems to have borne relatively little fruit was the use of helicopters to explore the sierra’s remote canyons. Beyond gaining rapid access to the general region, helicopters made it possible “to observe and photograph Indian cave paintings … and to make useful records without being able to get to some of the locations on the ground” (Meighan 1969:15). The helicopters also allowed the
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investigators to photograph the murals from panoramic perspectives that would have been impossible to duplicate on the ground. However, Meighan was perhaps being overly sanguine when he wrote that “while helicopters are now commonplace in such fields as oil exploration, the benefits of such travel have rarely been available to archaeologists and the Gardner expedition was a model of what a modern expedition should be, and what more and more expeditions of the future will be” (Meighan 1969:14). Massey (1964:954), in his book review, would sarcastically remark that “no archaeologist can possibly ignore the one real contribution of Hidden Heart of Baja: It has now been proved, once and for all, that a man in a helicopter can go almost anywhere that a man on burro or afoot has gone.”

Mapping Site Locations

Prior to the Gardner expedition, visitors to the Great Mural sites had devoted little or no effort to depicting the sites’ locations on regional maps. This was understandable, given the absence of large-scale topographic maps and the intricate patterns of the sierras’ landscapes. The use of helicopters by Gardner and Meighan enabled them to trace canyons more rapidly and clearly than they could have done with comparable efforts on the ground. However, Meighan’s (1969:23) sketch map of the sierra was still fairly crude, and it was also inaccurate in some respects. A decade later, with more time on the ground and other resources, Harry Crosby (1975) was able to produce considerably better maps. In the decades that followed, the availability of large-scale regional topographic maps, high-resolution satellite photographic images, and portable global positioning systems has completely revolutionized archaeologists’ responses to the mapping challenge.

Reproducing the Images

A persistent problem has concerned how to adequately represent the Great Murals visually. The Jesuit accounts of the paintings were limited to brief, purely verbal descriptions. However, by the late nineteenth and early twentieth centuries it had become practical to publish drawings and photographs. In his articles Diguet included a drawing of a portion of the Palmarito panel (Diguet 1895:169) as well as a sketch of individual anthropomorphic elements from different sites in a comparative array (Diguet 1899:34). He also took photographs at Great Mural sites and published two of them (Diguet 1899:Plates V and VI). Davis (1949:25), Jordan (1951), and Dahlgren and Romero (1951) also published photographs of Great Mural elements at San Borjitas.

Dahlgren gave some thought to methods for adequately reproducing the San Borjitas murals. However, she determined that her initial intention to trace them directly on translucent glassine paper was impractical. Color photography was found to be more successful, not only preserving a record of what the eyes could see but also revealing things through benefit of the photographs’ greater sensitivity to different shades of red (Dahlgren 1954:24).

Gardner’s Life photographer, Nat Farbman, was one of the first to present Great Mural panels to the world in all their glorious color. The Gardner expedition also employed drawings and a 16-mm movie camera to document their discoveries visually.

Later investigators have worked to develop more rigorous procedures for accurately drawing rock art panels (e.g., Moore 1986a, 1989). With the advent of digital photography, a key innovation has been the use of color filter programs, most notably Jon Harman’s DStretch, to reveal faded or overpainted patterns that are largely or completely invisible to the naked eye (e.g., Harman 2006).

Documenting and Analyzing the Murals Statistically

Beyond reproducing the paintings visually, important techniques in their documentation have involved measuring and counting. The eighteenth-century
Jesuits made some estimates of the dimensions of their discovered sites, including the rock shelters’ heights, widths, and depths. However, Crosby (1997:100), in his attempts to identify the specific sites that the Jesuits had visited, argued that those records of the sites’ dimensions were substantially inaccurate. Diguet reported the dimensions of rock shelters as well as a few generalizations about image sizes and counts. Davis (1949:27), in addition to recording rock shelter dimensions, counted 89 anthropomorphic figures at San Borjitas. Dahlgren and Romero also recorded rock shelter dimensions and counted figures.

Meighan continued the practice of reporting the dimensions of the rock shelters and counting major images. Beyond this, he carefully compiled statistics on the frequencies of image subjects (humans, deer, rabbits, eagles, mountain sheep, cat, whale, fish) and colors (red, black, red-and-black, white, black-and-yellow) by site and by rock shelter “face.” His incomplete inventories of the four sites identified a total of 241 individual anthropomorphic and zoomorphic images, in addition to more abstract motifs. He also discussed the correlations between site or face and image types and colors, as well as the frequencies in the superposition of particular image types and colors. This work went far to putting knowledge of at least a few of the Great Mural sites on a more empirical and analyzable basis, moving beyond mere personal impressions.

Since 1962, there have been much more extensive and, sometimes, more intensive studies of the Great Murals. Some of those studies have followed Meighan’s scientific lead in quantification, but many, perhaps most, have reverted to earlier subjective, impressionistic habits.

Perceiving Shared Patterns and Variability in the Images

Intuitively, the distinctiveness of the Great Mural style, particularly within the Sierra de San Francisco, has been immediately apparent to all observers. Beyond that, documenting shared traits and variability in the mural figures’ details has been a persistent research strategy. Particular interest has focused on the shapes used for the outlines of the various species and on the patterns in paint colors that were used to fill in those outlines.

The Jesuit discoverers left little record of their observations on style, but Diguet went into greater detail. In his 1899 article he presented an array of 13 idealized patterns for anthropomorphic images, focusing particularly on variation in body colors and headdress shapes, observed at five sites in the Sierra de Guadalupe and the Sierra de San Francisco. This was, essentially, a typological approach to the images.

Dahlgren and Romero classified the anthropomorphic figures at San Borjitas into three chronological types that were thought to represent the painters’ increasing sophistication: “scarecrows” (espantajos), “cacti” (cardones), and the more naturalistic “two-colors” (bicolors). In addition, they recognized a number of “eccentric” types, including “coyote,” “checkered” (cuadriculado), “fallen arms” (el de los brazos caídos), “toad” (el sapo), and “dead” (el muerto). The INAH investigators also distinguished greater variability in color than has been proposed by most other observers, before or since: “two shades of yellow, one medium and the other almost ocher; five red tones are pink, light red, Indian red and two shades of purple; gray ocher; black; and white” (Dahlgren and Romero 1951:176). They admitted their uncertainty as to how much of this color variability was in the original paintings and how much of it merely reflected subsequent weathering, but they asserted that at least three different shades of red were original.

Meighan followed Diguet’s lead in the matter of classification of anthropomorphic forms, but he amplified this typology to distinguish about 20 patterns. He also distinguished two size classes of anthropomorphic
images. The predominant group were life-sized or larger, while the other class were generally around 30 cm in height; “intermediate sizes are absent and there is not a continuum of sizes” (Meighan 1969:59). He interpreted the difference in size classes as chronological, based in part on the evidence from superposition. Meighan extended Diguet’s typological approach to include zoomorphic images as well, presenting several general patterns or types for deer, mountain sheep, rabbits, birds, and fish, taking his examples from Cueva Pintada, Cueva de la Soledad, Cueva de las Flechas, and Cueva de la Cuesta del Palmarito (Meighan 1969:31–38). The typological approach of Diguet and Meighan has sometimes been elaborated by later investigators (e.g., Smith 1986:121–122; Hyland 1997:373–374; Viñas 2013:94–103; Rubio 2013:85–132). Frequently, however, formal classification and analysis have been eschewed in favor of impressionistic accounts.

Meighan’s perspective on formal variability within the Grand Murals was limited by his personal experience of only the relatively uniform Sierra de San Francisco murals, plus some second-hand knowledge about San Borjitas. Subsequent investigators have been able to document substantial geographical variability throughout the Great Mural range (e.g., Hambleton 1979; Crosby 1997). Formal Great Mural substyles have been proposed (e.g., Hyland 1997), with the sites visited by Gardner and Meighan in 1962 being assigned to the Sierra de San Francisco substyle.

Assessing the Condition of the Images

The modern condition of the murals has evident implications for their interpretation, particularly with respect to their age. The eighteenth-century Jesuits commented on the good state of preservation of the paintings. Diguet reported the paintings at different sites as, “for the most part well preserved,” in “poor condition,” or “scarcely recognizable” (Grant 1974:39–44), but “these paintings, even now, are mostly in an adequate state of preservation” (Diguet 1899:28).

Gardner (1962a:64) observed “many well-preserved paintings. Several in the sheltered parts of the cave were as fresh and bright as if they had been only recently completed.” Where there was superposition, he noted that the lower images “had faded but were still visible” (Gardner 1962b:213). Meighan (1966:372) commented on the presence at Cueva del Ratón of some damage resulting from weathering, as well as a small amount of vandalism. Pothunting and vandalism were reported as being absent from the other three sites that were visited by the Gardner expedition.

Beyond the significance of the paintings’ condition for inferring their age, the problem of monitoring their conservation has become an important concern for INAH in recent decades (e.g., Gutiérrez and Hyland 2002:379–401; Gutiérrez 2010:63–68). The attention to this problem has been heightened by increasing visits to the sites from tourists, which are in part traceable back to the visits by Gardner and Meighan, and to the UNESCO designation of the “Rock Paintings of the Sierra de San Francisco” as a World Heritage site in 1993.

Evaluating Mural Composition

A perennial and difficult issue concerns the degree to which the murals represent intentional compositions of multiple images, rather than being merely arrays of independently created images. Diguet (1895:161) suggested that Baja California pictographs portrayed “scenes of active life, such as hunts, battles, etc.” He argued that a mural “by the grouping and arrangement
of subjects … was tied to the achievement of a decorative design” (Diguet 1899:31). On the other hand, according to Meighan (1966:384), “no ‘scenes’ are distinguishable, although in some cases it appears that several figures were done all at the same time.” The superposition of images in seemingly arbitrary ways is one of the most marked characteristics of the Great Murals. Meighan (1966:383) noted the presence of up to four layers of images, despite the availability of abundant unused wall space.

Meighan (1966:384) judged the images in the murals as “static,” with action implied but not indicated. Some later observers have contrasted static human images with dynamic animal images that seem to imply motion. However, this conclusion may be based primarily on the fact that human bodies are shown from a basically ventral (or possibly dorsal) perspective, while many of the animal species images are seen in a lateral view that seems to suggest movement across the viewer’s field of vision. Rather than implying the presence or absence of movement, these choices of perspectives can be interpreted as the ones that allow the images to convey most unambiguously each species’ identity. Distortions in the dorsal or lateral perspectives, in which human feet and female breasts, deer antlers, rabbit ears, and other features seem to be rotated from a naturalistic orientation, can also be interpreted as having been done to emphasize the images’ species identifications.

Subsequent investigators have challenged Meighan’s view concerning the absence of “scenes” in the Great Murals. In a few cases, the complex arrays of images give an undeniable sense of being organized compositions. Notable examples come from the sites of El Batequi and Cueva de la Serpiente, both of which are located in the Sierra de San Francisco but which were not visited by Gardner and Meighan. Some investigators have offered speculations concerning mural composition more generally, including at Cueva Pintada and other sites that were seen by Gardner and Meighan (e.g., Moore 1985). Other analysts have supported Meighan’s conclusion that the acts of painting and of superposition were paramount rather than the production of organized compositions intended for viewing (e.g., Hyland 1997:42; Gutiérrez 2010). Interpretations concerning mural composition have generally been speculative in character and lacking in any rigorous empirical testing or confirmation.

**Consideration of Contexts**

Gardner and Meighan gave relatively little attention to the contexts of the murals within the sites that contain them and within the sites’ wider landscapes. The four rock shelter sites visited in 1962 were all reported as being in formations of sandstone conglomerate. Meighan noted that one of the mural sites had a spring and large palm trees within the shelter, but that the others were situated on ledges 60–150 m above the canyons’ floors. On a broader geographical scale, he suggested that the topography of the sierra would have given the sites’ occupants readyer access to the Pacific coast than to the Gulf of California, even though the Gulf was nearer in straight-line distance.

Diguet had given more thought to the implications of the specific rock shelters that were selected for doing the Great Mural painting and the placement of paintings within them. He believed that the sites for Baja California paintings had been purposely chosen, almost always in locations closely associated with water sources and in contexts that implied the use of the sites for habitation or for group meetings (Diguet 1895:161, 1899:28, 31). Sometimes materials were piled up in front of the entrances of the rock shelters, apparently to conceal their presence. “The paintings generally occupy the entrance of the cave or at least the best-lit portions; they are arranged so that they receive sunlight at certain times of day” (Diguet 1895:165).
Excavating and Collecting Associated Artifacts and Ecofacts

Documented surface collection and excavation within and adjacent to the Great Mural rock shelters began with Dahlgren and Romero’s excavation of over 40 m² of deposit at San Borjitas. The cultural deposits were found to be fairly shallow (35 cm deep), but the recovered materials included arrow points and tools of obsidian and bone. Surface collections also recovered manos, metates, marine shell, and one human bone.

Based on the Gardner expedition, Meighan reported only very limited possibilities for excavation at the Great Mural sites:

Except for Gardner Cave [Cueva Pintada], the shelters all have bedrock floors so there is no chance of recovering materials made by the ancient inhabitants. Gardner Cave, however, had some pockets of soil in crevices of the boulders and on the last day we excavated the small amount of soil in the cave and recovered from it 139 objects used by the Indians, including sea shells, animal bones, wooden arrow parts, basketry, and other small items [Meighan 1965b:17].

Subsequent studies have indicated that Meighan seriously understated the potential for excavation at the Great Mural sites. Hyland and Gutiérrez conducted excavations at three Great Mural sites in the Sierra de San Francisco, among them Cueva Pintada and Cueva de la Soledad (Hyland 1997:142–145). At Cueva Pintada, 1.67 m³ of deposit was excavated, recovering more than 2,000 lithic artifacts and 70 g of bone. A surface collection sample of 18 percent at the site also recovered nearly 2,000 lithic artifacts and more than 100 g of bone. At Cueva de la Soledad, excavation of 1.13 m³ of deposit yielded over 1,300 lithic artifacts and 150 g of bone, while a 41 percent sample surface collection yielded more than 2,300 lithic artifacts and 10 g of bone. Cordage, textile remains, cane fragments, shell, floral remains, and radiocarbon samples were also recovered. Archaeologists from the Universitat de Barcelona conducted productive excavations of 19 m² at Cueva del Ratón in 1991–1992, identifying thermal features and recovering lithic artifacts and faunal remains (Petit and Rubio 2006; Rubio 2013:75–80).

Interpreting the Great Murals

Commonly posed questions about the Great Murals have concerned the age of the paintings and the identities, methods, and motivations of their painters.

Who Painted the Murals?

Two main schools of thought have existed concerning the identity of the Great Murals’ painters. Did the artists belong to an early, vanished prehistoric race or culture? Or alternatively, were they the ancestors of the Cochimí people who were encountered in the region by the Jesuits in the eighteenth century? Gardner adhered to the first of these schools, while Meighan largely supported the second.

Gardner was initially drawn to the Great Murals to try to substantiate his speculations concerning a race of prehistoric giants, citing “rumors I had heard of a vanished race in Mexico, who averaged seven feet in height” (Gardner 1962a:61). This notion of giants had been given credence in the Jesuits’ earlier accounts (Barco 1973; cf. Laylander 2014) and was still being echoed in local popular beliefs at least as late as the 1970s (Tyson 1976) despite the absence of scientific support.

Beyond the question of the painters’ stature, Gardner believed that they had been hardy warriors whose traces represented a “rather highly developed civilization” (Gardner 1962b:237). They were thought to have migrated into central Baja California from the north.
and later continued farther south, down the peninsula’s blind alley (*callejón sin salida*), and in another move embarked by sea for the Mexican mainland: “It is … entirely possible that these caves represent the location of the origin of the seven tribes who came down from the north to conquer Mexico” (Gardner 1962b:234), that is, that the Great Murals’ painters were the ancestors of the Aztecs.

The scientifically minded investigators of the late nineteenth and early twentieth centuries, while not insisting on the existence of a race of giants, had also favored the notion that Baja California’s rock art must have been produced by a vanished prehistoric race. Diguet (1895, 1899) suggested that the painters had arrived from the north, moving down the peninsula’s cordillera, continuing south to land’s end, and then crossing to the Mexican mainland. Davis (1949:27) concluded that the historically known native inhabitants of the peninsula “were all so primitive that it seemed beyond belief that they could have executed the giant mural … the painting must have been done by a superior and unknown race.”

Some subsequent investigators doubted that central Baja California’s ethnohistorically known Cochimí (Peninsular Yumans) were the murals’ creators, in part because of the great age now sometimes attributed to at least some of the paintings (e.g., Harry Crosby, quoted in Roach 2003). Far-fetched speculations have even linked the murals with trans-Pacific movements of Melanesians or Australian aborigines to the peninsula (Hambleton 1979:34).

In contrast to these views, Meighan assigned the artifacts found in Cueva Pintada to the late prehistoric Comondú culture, which had recently been defined archaeologically by Massey (1961). The Comondú culture, in turn, was identified with the Cochimí. However, Meighan did not entirely reject a certain degree of cultural discontinuity between the painters and their historic-period descendants. The murals were thought to represent “a somewhat more advanced culture than reported by the Spanish” and “a surprisingly rich and developed culture for this part of the world” (Meighan 1966:372, 374):

> The peak of Comondú development was reached hundreds of years before the Spanish arrival, so that the Cochimí missionized by the Spanish represented a watered-down and struggling survival group rather than the culture at its more successful and richest level [Meighan 1966:375].

Dahlgren (1954:23) also admitted the possibility that the contact-period Baja Californians were impoverished descendants of the mural painters. But until the mid-twentieth century, archaeologists displayed a general bias in favor of interpretations of prehistoric cultural change that were based on migrations and ethnic replacements, as against in situ development. That bias has been largely reversed in more recent decades, in favor of in situ development and minimizing the effects of migration (cf. Willey and Sabloff 1980; Trigger 1989).

**How Old Are the Murals?**

The age of the murals and the length of the period during which they were being produced were difficult issues to address as recently as the early 1960s, and they have continued to be points of contention during subsequent decades. Gardner and Meighan were in general agreement that the paintings belonged to a very late prehistoric period and that they represented a fairly brief episode of activity.

Rotea, Escalante, Diguet, and Davis possessed no substantial evidence upon which to base any estimates of how old the murals were. Davis (1949:27) suggested that the San Borjitas murals had been painted between 500 and 1,500 years ago. That speculation apparently had no basis beyond, on the one hand, the assumption...
that the painters must have preceded the historically known Cochimí, but, on the other hand, that they were well preserved. Dalhgren and Romero speculated that the occupations at San Borjitas had occurred intermittently, perhaps over centuries. They distinguished a relative chronology of three phases of the paintings based on their forms (“espantajos,” “cardones,” and “bicolores”), colors, and superposition.

The caption of a photograph of Cueva Pintada in Gardner’s *Life* article suggested that the images “were painted over a period of approximately 200 years,” but no basis for that estimate was offered (Gardner 1962a:61). Elsewhere, noting the superposition of images and the faded condition of the lower ones, Gardner (1962b:211) opined that “apparently the paintings had been made at different times, perhaps by many different generations.”

Meighan identified the artifacts from Cueva Pintada, including portions of arrows and small, finely chipped projectile points, as belonging to Massey’s Comondú culture, which in turn implied that the site dated “within the last thousand years or so” (Meighan 1965b:17), but he sought to get more precise dating. In 1962 radiocarbon dating had only limited use in prehistoric archaeology. Meighan collected a wooden peg in Cueva Pintada that was measured as 530 ±80 radiocarbon years BP (sample UCLA 200-A). He interpreted this measurement as likely dating the cave’s paintings between AD 1352 and 1512 (incorrectly taking 1962 rather than 1950 as the BP baseline). This date would now be calibrated to a one-sigma range (68 percent probability) between AD 1310 and 1445, or a two-sigma range (95 percent probability) between AD 1280 and 1616.

Beyond that single date, Meighan tried to address the duration of the period during which the Great Murals were produced. One possible approach was through using patterns of superposition for image types and/or colors as reflecting stylistic changes through time. “In general, this was not productive, and the basic aspects of style and content seem to have persisted throughout. This in turn suggests a relatively short period of time during which the art flourished—a few generations or at most two centuries” (Meighan 1966:288–289). He offered a “guess date” for the paintings of 500–1,000 years before the present, “based on missionary accounts and cultural level revealed by the artifacts” (Meighan 1966:379).

Meighan did detect some change through time in the paintings. Birds and smaller human figures seemed to postdate most of the other images and seemed to represent a “decline” or “cultural disruption” (Meighan 1966:389). Possible sources for the decline might have included climate deterioration, overhunting, or the introduction of Old World diseases in advance of actual Jesuit missionization on the peninsula.

Meighan’s conclusion that the murals were entirely prehistoric rather than overlapping the historic period that had begun in AD 1697 seems to have been based on the absence of Jesuit testimony to their creation, as well as some special pleading concerning the archaeological evidence. At Cueva Pintada he acknowledged that evidence existed for “intermittent use of the shelters in the protohistoric and historic periods” (Meighan 1966:378). The evidence included four painted cross images, an iron knife blade, and brownware potsherds. However, he insisted that these remains “do not date the paintings and are not part of the cultural assemblage revealed by the rest of the artifacts,” but represent only “casual visits” (Meighan 1966:378). He suggested that the paintings had been abandoned some 200 years before the Jesuits arrived. At the other end of the time scale, Meighan (1966:390) suggested that the Great Mural painting had begun “perhaps 600 years ago.” He noted that there was nothing in the rock shelters (such as, presumably, large projectile points, predating the bow and arrow) to indicate the presence of an older cultural stratum.
Subsequent to 1962 much more extensive recoveries of predominantly small (“Comondú”) projectile points at Great Mural sites have supported Meighan’s interpretation. However, one large stemmed point (“La Paz/Gypsum”) was recovered from Cueva de la Soledad (Hyland 1997:167), and a small stemmed point (also typed as “La Paz/Gypsum”) was recovered at Cueva del Ratón (Rubio 2013:79).

Many additional radiocarbon dates on materials recovered from Great Mural sites and elsewhere in the Sierra de San Francisco have become available, most notably through the work of Justin R. Hyland and María de la Luz Gutiérrez (Hyland 1997; Gutiérrez and Hyland 2002). Seventy-eight calibrated radiocarbon dates from three Great Mural sites (including Cueva Pintada and Cueva de la Soledad) range from 10,860 ±90 BP (two-sigma calibrated range, 11,029–10,756 BC) up to essentially the present, but dates from the last 2,000 years strongly predominate.

Beyond dating the cultural deposits within the murals’ rock shelters, attempts have been made to date directly the materials used within the images themselves, including paint in images and artifacts with paint at the sites (e.g. Fullola et al. 1994; Hyland 1997:285). Direct dating of some of the paintings by Alan Watchman has suggested a much wider range of dates for the images than most other investigators have accepted: “Watchman, who is a specialist in rock art dating, obtained his dates from painted samples collected in 2001. More than 30 samples have been dated so far and several of them are at least 5,000 years old. Some go back 7,500 years” (Roach 2003). However, as Gutiérrez (2010:59) has noted, there is “severe controversy” concerning the validity of such dates.

**How Were the Murals Painted?**

The methods used by the Great Mural painters have long been subjects of speculation. The most intriguing problem has been to account for the occurrence of images placed on walls or ceilings high above the rock shelter floors, often in what seem to be very precarious positions. The notion of a prehistoric race of giants was one partial answer to that problem, favored by Rotea and Escalante and perhaps by Gardner. The Jesuit Miguel del Barco (1973:213), in documenting his colleagues’ observations and interpretations, accepted the idea that the painters had been giants but suggested that they had constructed wooden scaffolding to paint more comfortably. Diguet (1899:40) proposed that rocks from collapsed roofs or walls in the shelters provided the painters’ platforms, after which the rocks were removed. Dahlgren and Romero concluded that scaffolding, rather than changes in the floor level, must account for the placement of the figures at San Borjitas. One later analyst would speculate that long poles might have been used to apply the paint (Smith 1985:49–51).

According the Meighan,

About half of the paintings could have been done by an artist standing on the shelter floor; the other half required something for the artist to stand on. The support was simple in most cases, including large boulders that had fallen from the cave roof or perhaps piles of smaller rocks. For the highest figures, however, some sort of scaffolding or ladder would have been essential. No such support now remains, but in terms of available material about the only possible solution was dragging one or more palm logs into the cave [Meighan 1966:383].

Other questions have concerned the specific materials and techniques that were used in painting. Rotea noted that the paintings’ colors (green, black, yellow, and red) matched those in the rocks of nearby volcanic areas (Barco 1973:211). Meighan identified the colors of the paintings with unused samples of white, brick red, orange red, purple, and yellow mineral materials.
found within the rock shelters and with charcoal in the case of black. Apart from white, the other mineral colors were evidently ground, although no traces of the materials were seen in the mortars on the floors of rock shelters. Hyland (1997:42) subsequently identified the black pigment as manganese oxide rather than charcoal. No brushes for applying the paint were found, but Meighan (1966:380) thought it unlikely that the paint had been applied directly by hand, given the large size and relatively narrow lines of some figures and the absence of handprints or dots made by fingertips.

According to Meighan, images were initially outlined, generally in white, before being filled in, as evidenced by some unfilled outlines. However, Crosby (1997:65) suggested that at least some of the apparently unfilled outlines may have represented images that had been filled in with black paint, which had subsequently weathered away.

**Why Were the Murals Painted?**

The motivations and intentions of the Great Mural painters are topics of unending speculation. The most common interpretations focused on rites relating to hunting and warfare. Jesuit missionary Escalante observed a rock shelter ceiling “full of figures both of animals and of armed men with bows and arrows, representing the Indians’ hunts” (Barco 1973:212). However, Rotea thought that the animal images represented not only species that were known in the region, such as deer and rabbits, but also a wolf and a pig (Barco 1973:211). Diguet (1895:164) suggested that “la décoration” was the purpose of the paintings, located in rock shelters that served as habitation or meeting places. At San Borjitas, which was perhaps the site visited by Escalante, Davis (1949:27) noted the scattered profusion of anthropomorphic figures, many of them apparently pierced by projectiles. He confidently interpreted the mural as depicting “the scene of savage, prehistoric warfare.... One large figure, done entirely in white, was completely transfixed by a black spear. We speculated that this, perhaps, represented a chief of the opposing tribes.” Dahlgren and Romero considered the San Borjitas paintings as likely representing sympathetic magic.

At the Sierra de San Francisco sites visited by Gardner and Meighan, in contrast to San Borjitas, animal rather than human images were most common. Gardner offered various speculations to account for the images:

Not long before Spanish missionaries arrived a cultural decline set it. Probably the once-abundant game and fresh water in the mountains diminished. As it grew harder to make a living the Indians tried to bring back the game by painting images of animals on the cave walls. To make sure the animal they brought into being would fall prey to the hunter, they showed it skewered with arrows and spears. These animal paintings may have been a sort of dying gasp of the Indians who lived in these canyons [Gardner 1962a:64].

The anthropomorphic images might distinguish particular individuals or social statuses. Gardner thought he recognized repeated images of a headman who “wore a peculiar three-pronged headdress wherever he appeared in the paintings, and this man was always faithfully depicted with his left side in black and his right side in red” (Gardner 1962b:213). “The figures that were entirely black were deliberately differentiated from the other figures; or perhaps it would be more fitting to say that those figures which were painted in red and black were the distinctive figures, probably the chief or the ‘medicine man’” (Gardner 1962b:232). A painting in one cave “showed a man being either executed or killed in battle. Half a dozen arrows were penetrating his body as he stood with hands upstretched” (Gardner 1962b:224). On the other hand, the anthropomorphic figures “painted half red and half black very probably represent a religious symbolism,
an occult blending of the positive and negative, the spiritual side of life and the material side of life” (Gardner 1962b:232).

Meighan more cautiously noted the existence of various explanations for rock art, but stated:

The most clear evidence is that the paintings were intended to serve as hunting magic—the notion being that the painter, in creating an image of an animal, would also by magic create a real animal that could then be obtained by the hunter. Evidence of this in the paintings is shown by the fact that most of the animals portrayed are shown with large arrows sticking out of them [Meighan 1965b:18].

Arrows were in evidence in about 25 percent of the animal images Meighan examined, and he thought it likely that most of the images had once included arrows. Arrows were present in what Meighan took to be the unfilled outlines for images, indicating that they were integral to the intended images rather than merely later additions. He also stressed the functional primacy of the production of the paintings over their display:

It appears that the act of making the painting was more important than the finished product, since there is much superposition ... in spite of abundant unused wall space where new paintings could go... In some cases, the pictures are placed in what appear to be the most difficult and dangerous places possible [Meighan 1966:383].

Meighan concluded that the hunting-magic interpretation was supported by: (1) the realistic depiction of life-sized animals, often pierced by arrows; (2) the prevalence of superposition and the placement of paintings in high and hazardous locations, indicating the predominant importance of the act of painting over any finished product; and (3) the absence of purely decorative devices in the paintings.

While accepting that San Borjitas might “not too implausibly” be interpreted as a battle scene (Meighan 1966:379), he rejected the interpretation of the anthropomorphic images in the Sierra de San Francisco sites as representing warfare:

It seems clear that, while the arrows were integral parts of many animal pictures, they were not integral parts of the human pictures, but were applied later to a limited number of figures. This does not represent warfare between groups; witchcraft or black magic may be the more plausible explanation for the few human figures showing arrows in association [Meighan 1966:382–383].

According to Meighan (1966:385), “there is no indication that the humans represent particular individuals or groups,” an interpretation that would be contested not only by Gardner but by some later observers. Meighan himself qualified this statement about anonymity by suggesting elsewhere that head ornaments “are undoubtedly symbolic of particular classes or kinds of people, but there is no basis for interpreting their original meaning” and by noting that “a rare symbol marking off certain human figures (three examples seen) is the occurrence of very small animal-like figures painted above the shoulders of certain of the humans … these are indicators of a particular kind of individual, but their special significance cannot be determined” (Meighan 1969:58).

I believe that this anonymous style and the evidence of superposition [with anthropomorphic figures statistically more frequently superimposed over zoomorphic ones than vice versa] support the conjecture that the human figures represent the dominance of man over the animals and that their meaning ... lies in
the realm of creating or controlling by magic the animal life necessary to the existence of the hunter [Meighan 1966:386].

In subsequent decades many rock art investigators have shied away from the once-popular explanations of hunting magic and warfare, rejecting the “hackneyed functionalism of sympathetic magic or social solidarity” (Hyland 1998:8). Post-processualist archaeologists have favored more fashionable speculations, often involving the prehistoric use of hallucinogens and shamanic experiences. Many alternative explanations have been proposed for the Great Murals, such as calendrical marking of solstices and equinoxes (Cover and Moore 1986; Moore 1986b; Jones 1990; Viñas 2013), ancestor worship (Hyland 1997; Gutiérrez and Hyland 2002; Gutiérrez 2013), fertility and protection from sorcery (Grant 1974:115), the narration of myths (Viñas et al. 1987; Rubio 2013), as well as “animal spirit helpers, vision questing, soul flight and xerianthropic transformations … trances … color, cardinal direction and male-female symbolism, and shamanistic initiation” (Hyland 1997:50–51). However, more down-to-earth explanations in terms of hunting and interpersonal violence have their continuing defenders (e.g., Laylander 2005).

Building on Gardner’s and Meighan’s Foundations

Gardner’s popular treatment and Meighan’s academic writings on the Great Murals helped to spark an outpouring of amateur and professional interest in the phenomenon over the next several decades. More intensive inventories were made, notably by Crosby (1975, 1997) and Hambleton (1979). Numerous conference presentations and articles in professional journals have focused on particular sites or on interpretive themes relating to the Great Murals. Broader summaries of Baja California rock art, including the Great Murals but extending beyond them, have been prepared by Campbell Grant (1974) and Eric W. Ritter (1991), among others. Later studies would echo many of the characteristics of the 1962 studies. Methods for discovery and description would continue to be important concerns, performed with greater available resources in time and increasing technical sophistication. Meighan’s efforts at rigorous scientific analysis and the posing of testable hypotheses to interpret the paintings would find some successors, but so too would Gardner’s unconstrained, idiosyncratic speculations.

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