The Road to Wadi al-Jubah

Archaeology on the Ancient Spice Route in Yemen

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From Wadi al-Jubah to the National Museum in Sanaa, this initial problem facing the project in 1976 was how to tackle archaeological research in a largely unknown and unmapped area. Fortunately, some important research had been done in both Wadi Beihan (Tinma' Hajar Bin Humied) and Marib in the early 1930s. Wendell Phillips and William F. Albright had led AFSM archaeological teams that had explored the pre-Islamic Arabian occupation, cemetery, and agricultural installations at these sites. The results of these projects have been published and are well known (Phillips 1935; Bowen and Albright 1958; Cleveland 1965; Janse 1962; Van Beek 1969). Unfortunately, no clear chronology, either epigraphic or ceramic, has come to be accepted for use in dating these or other archaeological remains in Yemen. Scholars have generally been divided between those who argue for a fairly 'early' date (ca. 1100 B.C.) for the beginning of this pre-Islamic Arabian culture (e.g., Janse 1962; Van Beek 1969), and those who argue for a much later (ca. 500 B.C.) starting date (e.g., Peronne 1980).

The AFSM team members decided to conduct a reconnaissance in the Wadi al-Jubah in order to determine the archaeological potential of the preserved remains in a cost-effective manner (Toplyn 1984). Eight weeks of survey in 1976 and 1977...
yielded the discovery of 101 new sites. These sites were found through visual reconnaissance during a circuit of the wadi, and through information gathered from the local inhabitants. Three cultural horizons were found during the reconnaissance: Neolithic, Pre-Islamic Arab, and Modern.

Neolithic Period

Neolithic structures were found in various places around the edges of the wadi. At all times they were found at an elevation higher than the wadi floor, and usually in the lower channels of subsidiary wadis where they debouched into the main wadi. Four types of structures which tentatively have been identified as Neolithic have been found (Fig. 5): round house-like structures, round courts, rectangular courts, and lines of stone in the vicinity of the house-like structures. They are all constructed of stone and are covered with ‘desert varnish’ (patina acquired through time on exposed surfaces). In no case has any artifact been found in conjunction with these structures. Their identification as Neolithic is based on lines of evidence. First, the French archaeological mission in Yemen found potsherds of this type associated with the Neolithic period partially on the basis of identifiable limestones (Bayle d’Hermont 1954). Second, indistinguishable evidence for an early date has been found at our site (AsY 965), where an ash deposit was found next to one of these structures. Beta Analytic dates from the ash and determined a radiocarbon date of 5020 ± 90 b.p. (Beta-7823). The uncalibrated date determined from this radiocarbon date is 3320 ± 90 b.c. using a 5568-year carbon-14 half-life and one sigma precision. (Alternatives using the new CLN method and two sigma standard deviation, the ash should date between 3435 and 3557 B.C. [Klein et al., 1982:129].)

This date seems to be in general agreement with the French dating of their material. We hesitate to call our structures Neolithic, however, because we have excavated no stratified deposits and thus no material evidence to indicate that cultural period. Also, at the present time we are not sure that Neolithicism is appropriate for the date indicated by the radiocarbon analysis, since so little is known about this time period in South Arabia.

Pre-Islamic Arabic Period

By far the greatest number of sites in the wadi date to the pre-Islamic Arabic (Qatabanian and Sabean) period. Four types of evidence for this cultural horizon have been found: epigraphic, cemetery, irrigation/agricultural, and occupational.

Epigraphic evidence is the goal of Father Jammie when he reached Wadi al-Jubah in 1976. Most of the pre-Islamic epigraphic evidence was found on blocks of building stone that had been incorporated into Modern buildings (Fig. 8). The problem of interpretation is compounded by the recent moving of building stones. It is clear that some blocks found in the Wadi al-Jubah originated elsewhere since the inscriptions on the blocks were recorded at other sites prior to their removal during the past 30 years (Fig. 6). Two main inscriptions are usually found in a stratified context or are in situ. One inscribed block found in the wadi al-Jubah was identified as the "name of a silt deposit in the wadi of an ancient well where the water has been used as a source of drinking water for both humans and animals."

Pre-Islamic Arabic Period

Remains of two or three Pre-Islamic Arabic cemeteries on the floors of the wadi are known to us. We have not examined the cemeteries in detail, but informants describe typical pre-Islamic Arabic pottery as coming from these burials. In one case an iron plowshare and burned human bones on a small rise, which was apparently a burial mound.

Many of the sites in the wadi are non-occupational; rather they relate to the irrigation and silt agricultural system. The agricultural methods employed by the ancient Qatabanians and Sababans were one of the few things known as we started the work in Wadi al-Jubah. Since the AFSM expedition to Wadi Beihan in 1950–51 explored that system (Bowen and Albrecht 1960), and compared it with the massive dam and silt deposits at Marib. A German team has recently explored the Marib remains and tried to reconstruct how the system actually worked (Schmidt 1982, Bömer 1985). The massive dam at Marib, with its channels and silt fields, served as a model to explain what we saw on a smaller scale in the Wadi al-Jubah: massive amounts of weathered silt, some silt tracts, remnants of channels, and subsidiary dams. Problems exist, however. A fairly large dam might have been expected in order to parallel Marib, but no evidence for such a dam has yet been found. Many small localized dams exist, however, around the edges of the wadi. This situation is causing problems of interpretation that we hope to solve in our next two campaigns.

Channels which are covered with decomposed concrete led to ancient field systems. The fields are now large tracts of deeply weathered silt. A probe through the silt beds suggests that they are about 10 meters deep and that all of the accumulation is the result of man’s agricultural deposition. Also, the bedding of the silt and the location of the visible channels atop the silt beds suggest that the system grew and changed over time, with the channels and human occupation sites rising as the silt deposition in the fields grew (Fig. 7).

Another interesting facet of the ancient agricultural system is the frequency of wells found in and around it. This may be explained as a form of water recycling. Rain comes to this part of Yemen in the form of mountain cloud bursts during monsoon seasons twice a year; in the summer and in the winter. The irrigation systems caught the water and directed it to the fields during flood conditions. The wells may be explained as means of bringing the water back to the surface after it had percolated through 15 to 20 meters of silt and wadi gravel. This would supply water during the long dry seasons when no rain could be expected.

The purpose of the well water is less clear. No mechanism for large-scale water raising has been found, but the use of well water for some kind of irrigation would still appear to have been possible (e.g., for growing palm trees). It could also have been used as a source of drinking water for both humans and animals. Ancient mounds (hajar) containing the remains of human occupation are common throughout the wadi [Fig. 8]. Small dwellings, villages, and one major ancient city have been found. Again, most seem to be found around the edges of the wadi where the ancient agricultural fields are best preserved. The numerous small occupation sites usually are found on the silt flats. Probes have been excavated at two of these sites. At Hijar al-Kaws (HK 25), the site was found to be sitting on top of about 8 meters of silt [Fig. 9]. Typical pre-Islamic Arabic pottery (Fig. 10) was found at this site in association with obsidian flakes. Further south at Hijar al-Farihah (HF 12), a larger probe discovered over 4 meters of occupation material remaining above the underlying sand and silt. Here, four occupational strata were isolated. The top layer contained the collapse of a roofed structure. Broken pottery was found along with the car-
bouzidm roof collapse. Radiocarbon dating of three of these beams yielded the following information, which, again, is uncalibrated and presented at a one-sigma confidence level:

Beta-7173 2460 ± 60 b.p.
Beta-7174 2380 ± 50 b.p.
Beta-7175 2530 ± 60 b.p.

This indicates an abandonment of the site around 400 b.c. at the very latest, and very similar radiocarbon dates came from the uppermost (terminal) layers of two other sites in the wadi, Juba al-Jadalih and Hajar al-Husn (Blakey 1983). The bottom layer at Hajar at-Tamrah contained a few scraps of pottery and a chunk of charcoal. This piece (Beta-7178) yielded a date of 3280 ± 110 b.p. (1230 ± 110 b.c.) uncalibrated. This dating evidence clearly supports the early chronology that was noted above, and it probably even pushes it back somewhat further in time to the 13th century b.c. Hajar al-Tamrah also yielded identifiable samples of wood, reed, bone, and obsidian. The wood and seeds suggest that Ziziphus spinos eritri was very common in the area. This is a small bush-like tree that produces an edible fruit. It has been called locust and jujube in English. The faunal collection consists mainly of sheep, goat, and camel, but other species such as cow and various equids are present. The obsidian collection represents a microlithic industry. At the present time the analysis of this material is incomplete, and the full results will be presented in the forthcoming report on the site.

A number of medium-sized sites exist in the wadi. Some of them are concentrated at the north end where the mountains almost join. The area is naturally defendable, and three fortlike sites at this point may indicate a defensive barrier. In comparison, two other natural and less defensible entrances to the wadi in the southeast have modest defensive walls or barriers, but no major occupational remains nearby. The most important occupational site in the wadi is located at the modern village of Juba al-Jadalih. The name of the site in Juba ar-Ruyah (H.I. 3), but it is usually referred to by the village name (Juba al-Jadalih). The site is between 5 and 10 acres in size, and it is surrounded by a large defensive wall. Potsherds and carefully worked stones litter the mound, as does the Modern period garbage dump. Modern stone robbing has opened a number of cuts in the defensive wall, and in January and February 1984, we excavated a small probe in one of these cuts (Figs. 11. 12a–b). This probe went down about 6 meters and was then halted, when safety and limited work space necessitated that decision. Five occupational strata were isolated here. The top stratum appears to have been deposited after a major destruction of the defensive wall. Pottery from this top deposit seems to be of a later variety than that found at Hajar al-Tamrah, and it may date to the last third of the first millennium B.C. (note, however, that the radiocarbon evidence given above argues for similar terminal dates, ca. 400 to 500 b.c., at Hajar al-Tamrah and at Juba al-Jadalih). The second through fourth strata are all layers that are associated with the
Active usage of the defensive wall by pottery similar to that from Hajar at Tannur suggests a date in the mid-first millennium B.C. for usage. The most exciting discovery was in the lowest (fifth) stratum that we encountered. Here the remains of a copper foundry were uncovered. Crucibles, slag, and charred wood were found along with what appeared to be a copper foundry floor layer. Currently these remains are under study in the Museum of Science and Civilization and a collection of the specimens is being prepared for publication.

The evidence for pre-Islamic iron in the Wadi Al-Jalid is very thin and very complex. The most significant data thus far are the radiocarbon dates obtained. Of these, two have come from Hajar at Tannur, Jabal Al-Jalid, and other sites in the wadi. Although the dates must still be considered tentative until confirming evidence can be obtained (such as from the lowest unexcavated layers in the probe at Jabal Al-Jalid, or from other excavations), some preliminary work has been done. The dates suggest that South Arabian cultures became a part of the early kingdom of Amur (late 5th century B.C.) which is about the same time that the camel seems to have been introduced in the Near East as a companion beast of burden. (see Billot 1975). The camel bones in our probes may agree with this reconstruction, and may constitute evidence for a breakthrough in transportation that helped to facilitate the development of these "remote" cultures. The dates also support the biblical tradition of the Qu'ranic account of the expedition of Janame, and may be used to refer to the Palmyra and other cultures. Although the Wadi Al-Jalid may have been abandoned about this period, which is not yet understood, it is clear that pre-Islamic Arabian culture continued to flourish in the 5th century B.C. at such sites as Maris and the Al-Jazirat Al-Ansariyah 1981. Since the Islamic period, the copper has been reutilized at Wadi Al-Jalid or other nearby areas. It seems likely that these fabled caravans and agricultural regions declined and remained backwater areas during those periods, when Islamic Arabian culture flourished elsewhere (especially to the west).

Modern Period

Numerous examples of Modern occupation were found in the core of the renaissance in the Wadi Al-Jalid. Pottery (Fig. 13), artifacts, structures, and cemeteries continue to be of interest to Modern occupation. All of these remains, however, seem to be at most about 200 years old. Some early examples of Islamic pottery or coins were found. Informants tell us that "everybody's great grandad came from Jeresh, the small village at the north end of the wadi. This may indicate that the copper has reappeared in the wadi before that time, but this topic has not yet been studied.

Future Work

A reconnaissance survey and two stratigraphic probes have brought us to this point. We now grasp the types of remains to be found in the wadi and see how they vary as to what they now contain. In our next two campaigns, we will address these major areas of study: a) a plan to continue to stratigraphically evaluate our probe at Jabal Al-Jalid; b) we feel that the ceramic and radiocarbon evidence is readily available here, and we need to get more and earlier remains to complete the sequence.

Second, we plan to complete an optimistic graphic survey of all known inscriptions in the wadi so that they can be published. This should be completed at the end of our next season.

Third, and of ultimate importance, we plan to bring in specialists to conduct a systematic study of the irrigation/agricultural remains. This will entail both geomorphological and botanical investigation of the preserved remains. At the conclusion of this, work, systematic mapping and a comprehensive study of remains in the best preserved area will take place. From this evidence we hope to learn in detail how and when our irrigation/agricultural system actually worked.

Many other studies, such as an investigation of the "Neolithic" remains, the cemeteries, or mountainous remains, must wait for the future. It also seems to be the case that large-scale excavation of some of the occupational sites in the wadi might be carried out in the future.