ETHIOPIA

The 1997 B.U./I.U.O. Excavations at Bieta Giyorgis, Aksum: A preliminary report

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Archaeological investigations were conducted from May 1 to June 18, 1997, on Bieta Giyorgis hill, Aksum, by Boston University (B.U.) and the Istituto Universitario Orientale (I.U.O.), Naples, under the direction of Kathryn A. Bard and Rodolfo Fattovich. As in former field seasons, the investigated area encompassed the upper part of the hill. The multi-disciplinary project included research in geology/geomorphology, archaeology, paleoethnobotany, archaeozoology, ethno-archaeology and ethnology, history, as well as systematic topographic mapping and conservation.

Geology/geomorphology (Prof. Gerald H. Johnson, Dept. of Geology, The College of William and Mary, Williamsburg, Virginia, USA). Geological fieldwork on the physiography, stratigraphy, and structure of Bieta Giyorgis and environs was conducted. Qualitative field observations were made on the kinds, distribution and weathering of the various rocks and soils and the relationship of these to terrain characteristics. Measurements were made on the strike and dip of bedding and jointing to sedimentary, igneous and metamorphic rocks.

Bieta Giyorgis rises 200-250 m above the surrounding terrain. The drainage pattern is radial and streams are intermittent. Three physiographic sections can be distinguished: 1) the flanks or lower steep part of the mountain, 2) the horseshoe-shape, gently sloping Ona Nagast plain, and 3) the central uplands of Bieta Giyorgis. The mountain has been extensively terraced for agricultural and forestal purposes. Bieta Giyorgis is underlain by a large mass of phaneritic igneous rock. Small pods of phyllitic rocks, 5 to more than 30 m long, occur locally within the igneous rocks. These rocks are overlain by a thin sequence of bedded sedimentary rocks, colluvium and alluvium on the Ona Nagast plain. The igneous and sedimentary rocks are weathered to form loamy to clayey, expansive soils. Finally, the rocks at Bieta Giyorgis have been deformed and broken during repeated periods of tectonism.

Topographic survey (Dr. Livio Crescenzi, Government Archaeological Office for Latium, Rome). The systematic survey of the central and northern parts of Bieta Giyorgis, including Ona Enda Aboi Zewgé and Ona Nagast, was continued. Particular attention was paid to evidence of pre-modern agriculture terraces and stone arrangements in order to determine earlier land-use practices as well as the geological features.

Archaeology (Prof. Kathryn A. Bard; Dr. Michael C. Di Blasi, African Studies Center, B.U., Boston, USA; Prof. Rodolfo Fattovich; Dr. Andrea Manzo, I.U.O., Naples; Dr. Cinzia Perlingieri, I.U.O., Naples). Archaeological investigations were conducted at two sites, Ona Enda Aboi Zewgé (OAZ) and Ona Nagast (ON). A reconnaissance of the southwestern sector of Bieta Giyorgis was conducted as well (for the results of the former seasons see Bard, Di Blasi, Fattovich, Manzo, Perlingieri and Crescenzi 1996; Bard, Fattovich, Manzo and Perlingieri in press; Bard and Fattovich 1993, 1995; Fattovich and Bard 1993, 1995, 1996, in press; Fattovich 1994, 1995). Seventeen samples of rock and soil were collected for petrographic and sediment analysis at William and Mary College. Twenty-five soil samples were collected, and fifteen were selected for palynological analysis at Boston University. Seventy-seven samples of charcoal were collected, and thirty-one were selected to be processed for radiocarbon dating in Cambridge, MA. One sample of the contents of a pot was also collected to be analyzed in Boston University.

Ona Enda Aboi Zewgé (OAZ)

In 1997, the excavation of the monumental Tomb 2 was resumed. Another monumental rock-cut tomb (Tomb 3) was recorded, but not properly excavated. An excavation unit (OAZ VII) was

opened in the area between OAZ I/OAZ VI and Tomb 2. Excavations at OAZ V, Tomb 2 confirmed the existence of an Early Aksumite monumental funerary complex dating to the 2nd century A.D. Tomb 2 was discovered in 1995, when a L-shaped corridor with steps was excavated, and the entrances to three rock-cut chambers were found (Fattovich and Bard 1995). In 1997, excavation of the east-west stairway was concluded, and the three chambers were opened under the supervision of R. Fattovich and C. Perlingieri. Chamber A, at the northwestern side of the corridor, was already opened when discovered in 1995. This chamber, 6.70 m long, consisted of a roughly square antechamber with a stepped niche to the SW and a horizontal gallery gently sloping to the NW. Very few potsherds and some fragments of glass were collected in the antechamber. Only one fragment of pottery was found in the gallery. The glass fragments point to a dating to the 2nd century A.D. No human remains were found.

Chamber B, at the northeastern side of the corridor, was originally associated with another vertical shaft, parallel to the corridor, and was closed by a stone slab, which lay at the bottom of the shaft beneath the fill. Some fragments of a circular basin with a ledge-rim were collected under the slab. At present, it appears that Chamber A and Chamber B were initially two separate tombs with independent shafts; they were later joined in one monumental funerary complex associated with Chamber C. Fragments of several vessels were scattered on the stone floor in front of the entrance, and along the southern side of the chamber. Hundreds of blue glass beads, as well some bored pottery disks, were collected in the same area. These artifacts confirm an Early Aksumite dating for this chamber. No human remains were found in this chamber. Chamber C, at the southwestern corner of the corridor, was most likely the latest burial chamber of Tomb 2. This was a large chamber, but most of the roof had collapsed, preventing a complete and detailed investigation. Only the "antechamber" was partly excavated, and a niche with a carved step was found to the west of the entry. A few fragments of Early Aksumite rectangular basins, and an imported Roman amphora from Gaul, dating to the late 1st to 3rd centuries A.D., were collected in the fill of the chamber. An inscription, which can be read as "matur," is stamped on the base of the amphora. No human remains were found in this chamber.

The potsherds collected from these chambers suggest at least 35-40 whole vessels, mostly from Chamber C. They included: rectangular basins of different types, large circular basins with a ledge-rim, open bowls with a short ledge-rim, medium size open bowls with a short ledge-rim, medium size open bowls with corrugations on the exterior surface, globular jars with a cylindrical neck decorated with crossed incisions, basins with a footrest, and small bowls. All of these vessels can be safely ascribed to the Early Aksumite phase (ca. 100 B.C.-A.D. 400).

The square shaft of another monumental rock-cut tomb (Tomb 3) was found, but only the upper part of it was cleared. Most of the shaft walls collapsed, as well as the upper part of the burial chamber. The floor of the latter one was visible at least at 5-7 m from the surface. This evidence supported the identification of rock-cut tombs with underground anomalies recorded by a team of geophysicists from the University of Cagliari (Italy) in November, 1996 (see Balia and Vernier 1996). At the same time, it confirmed the very bad state of preservation of these tombs.

The excavation of OAZ VII, 10 x 10 m in area, revealed a man-made stone platform associated with at least two monoliths, in the southwestern sector of the unit. The two stelae were now collapsed, but seem to have once been aligned along a north-south axis. The platform was about 0.50-0.60 m high, and was built upon a stratum of light brown clayey soil, about 0.10-0.15 m thick. This covered a thin layer of clay over the tuff forming the bedrock. The construction was carefully constructed and consisted of large stones in a mortar of a compacted yellow clay. In some areas the clay mortar was covered with a white plaster. An opening, possibly of a square shaft, ca. 2 x 2 m in size and delimited by a regular alignment of stones, was identified beneath the top of Stela 2. This feature was not completely excavated, but the upper part of it provided a great quantity of sherds from at least 15 vessels.

A very badly preserved human burial was found under a small pile of stones on the surface of the platform to the northwest of the square shaft (?). The body was lying on the left side, in a contracted position, with the head to the east facing south. On each arm were two thick bronze bracelets. According to Louis Chaix, these remains may be of a juvenile.

Very few scattered (human?) bones were also found on the top of the platform, under another small pile of stone to the southwest of the square shaft(?). They lay directly on the surface of the platform, and no other feature was detected beneath them. The pottery from OAZ VII can be safely ascribed to the Proto-Aksumite phase (ca. 400-100 B.C.) (Fatttovich and Bard 1995, 1996).

Ona Nagast (ON)

Three excavation units were opened in the settlement area at Ona Nagast in 1997. Excavation of ON VII and ON VIII was supervised by M.C. Di Blasi; ON IX by K.A. Bard and A. Manzo. ON VII and ON VIII were contiguous and formed one excavation area. Moreover, Feature 1 at ON V (1996) was re-opened by R. Fattovich in order to complete the stratigraphic excavation of this unit. Four layers of soil, covering the bedrock, were identified at ON V/F1. At the bottom of the soil sequence and on top of the bedrock were some traces of a hearth with fragments of pottery and bones, which were near a small standing stele, erected in a hole cut in the bedrock. The pottery from these layers was atypical, but a few possibly Pre-Aksumite sherds were collected on top of the bedrock.

Excavation Units ON VII and ON VIII were located immediately north of (and are contiguous to) units ON IV and ON VI, excavated in 1996. The excavation of ON VII/VIII revealed a very complex arrangement of stone masonry walls from multiple phases of construction and structural modification, from Early Aksumite to Middle Aksumite times. Thirteen major stone walls (including 4 stepped walls) and four stone stairways were found. One wall ((SU 41) is the continuation of the exterior stepped wall (SU 17) of ON IV/VI. Three "rooms" (Room 1, 2, and 3) were identified. Room 1 is on the eastern periphery of the complex. Rooms 2 and 3 are to the west of Room 1 and may have been small courtyards or corridors linking the peripheral rooms of the complex to the central building. The central building may lie to the west of these rooms, beneath a terrace of cultivated land. Two distinct living floors or occupation surfaces could be distinguished: 1) the remains of a brick tile floor laid on a compacted clay surface in Room 2; and 2) a stone pavement laid on a compacted clay surface in Room 3. Below the brick tile floor and compacted clay of Room 2 a stone-lined water conduit was excavated which was part of a drainage system. Much pottery (both local and imported), grinding stones, beads, glass sherds, bronze/copper artifacts, lithics, and animal bones were excavated here. Two coins were found: one was minted by King Kaleb (ca. A.D. 500-550) and one minted by Armah (ca. A.D. 600-630). The locally produced pottery and imported artifacts found indicate a continuous period of occupation from Early through Middle Aksumite times.

Excavation unit ON IX was opened at the top of Ona Nagast, about 150 m southeast of the ancient cistern (Ela Nagast). Remains of a huge building with massive stone walls were found in this unit. Ranging from 0.60 m (internal walls) to 1.0/1.40 m (external walls) in thickness, the walls were stepped, with a southeast-northwest orientation. They were carefully constructed with small, fairly rectangular stones (15-20 cm long), arranged fairly regularly. The lower part of the walls was wider than the upper part, and formed one or two steps ca. 20 cm wide. At the top of each external step were small schist slabs laid flatly. The construction technique is reminiscent of that of the Ethio-Sabean "palace" of Gra'at Beal Guebri at Yeha (Anfray 1972, 1973). The foundation trenches of the walls had been excavated directly in the bedrock. These walls delimited two long and narrow rooms (Rooms 1 and 2), 6 x 1.30 m, and a possible open area in the northern part of the unit. Such an arrangement of narrow rooms is also known in basements of South Arabian monumental buildings (e.g. Doe 1971).

The foundation trenches of the northern room (Room 3) had been cut into two man-made floors and stone rubble from an earlier collapsed building. A pit cut in the bedrock for a hearth was partly covered by a wall in Room 2. The room fill in Room 1 was heavily disturbed by post-Aksumite occupation (dating to medieval or later times), as well as animal holes. A South Arabian silver coin of the King of Saba and Dhu-Raydan, Amadan Bayn, was found in a rodent hole in a post-Aksumite deposit of ash in Room 1. The original context of the coin was probably from a floor disturbed by the post-Aksumite deposit. Well preserved black-topped pottery in the hearth of Room 2 dates it to Pre-Aksumite (Ethio-Sabean) times (mid-1st millennium B.C.; see Fattovich 1980). The fill in Room 3 was well preserved and provided a good stratigraphic sequence:

1) upper stratum, about 1 m thick, of collapsed rubble; 2) a very well preserved man-made floor with small pieces of yellow weathered rock in a clayey matrix; on the top of this floor much glass was collected, dating to the 3rd century A.D. (i.e., the end of the Early Aksumite phase); 3) a stratum of clayey soil with a few stones, about 0.40 m thick, with Proto- to Early Aksumite pottery (late 1st millennium B.C.-early 1st millennium A.D.); 4) another man-made floor of compacted red soil, where the foundation trench of the monumental walls was cut; the ceramics associated with this feature were typologically Proto-Aksumite, with a few pre-Aksumite elements. This evidence strongly suggests that the walls were constructed in Proto-Aksumite times (ca. 400-100 B.C.) (see Fattovich and Bard 1995, 1996). The lowest strata cut by the foundation trench consisted of a man-made floor, covering a soil stratum, with only Pre-Aksumite (Ethio-Sabean) pottery, mainly black-topped ware.

Archaeological reconnaissance

A reconnaissance of the southwest sector of Bieta Giyorgis was conducted by A. Manzo at the end of the field season. The area to the northwest of Ona Nagast and an outcrop of rock, to the west of the site and forming the highest part of the hill, were investigated. Pottery and lithic assemblages were recorded on the southwestern slope of the outcrop. The pottery was very eroded and surface treatment and decoration were not recognizable. The paste, orange in color with a grey core, was coarse with angular inclusions of limestone and quartz. The walls were less than 5 mm thick. The lithics associated with this pottery included only debitage of quartz/agate and no tool was recorded. The age of these artifacts is uncertain. Despite their bad state of preservation, the ceramics can be ascribed to a local tradition of northern Tigrai dating from late prehistoric to early Aksumite times (Fattovich 1980). About 150 m to the northwest of ON some areas of ash had become visible on the surface, due to plowing. These ash deposits contained small hemispherical clay crucibles, about 10-15 cm in diameter, with thick walls. The crucibles showed traces of ash encrustations and burning. They were associated with sherds of Early Aksumite vessels (footrest basins, large jars with handles). This evidence suggests the occurrence of early Aksumite manufacturing areas to the west and northwest of Ona Nagast, already indicated by the lithic workshop excavated in 1995 at ON II (Fattovich and Bard 1995).

In 1997 ca. 60 sherds of imported pottery and ca. 70 fragmentary or complete glass vessels were collected at OAZ and ON, and studied by A. Manzo. The presence of these materials suggests: a) continuous contact with the Sudanese peoples up to the 6th century A.D.; b) continuity of contact with Southern Arabia in Proto-Aksumite times; 3) contact with the Late Hellenistic and Roman Mediterranean countries beginning in the 1st century A.D.; 4) continuity of contact with the Mediterranean region up to the 7th century A.D. 5) intense contact with Syria from the 4th to the 6th centuries A.D.

Paleoethnobotany (A. Catherine D'Andrea, Dept. of Archaeology, Simon Fraser University, Burnaby, BC, Canada): Flotation samples from the 1996 and 1997 field seasons were examined. They provided evidence of emmer wheat, free-threshing wheat, barley, teff and flax, as well as legumes and grape. One grain and three chaff fragments of emmer wheat (*Triticum dicoccum*) were found at Ona Nagast. They date to Middle Aksumite (ca. A.D. 500-700) and Proto- to Early Aksumite times (90-70 B.C.), respectively. Two grains of free-threshing wheat (*Triticum durum/aestivum*) were collected at Ona Nagast, and date to transitional Early/Middle Aksumite times (ca. A.D. 400-500) and Middle Aksumite times. Four grains of hulled barley (*Hordeum vulgare*) were found at Ona Nagast, and date to Middle Aksumite and Late/Post-Aksumite times (after A.D. 700), respectively. One badly damaged grain of teff (*Eragrostis teff*) was collected at Ona Nagast in a context dating to the end of the Early Aksumite phase (ca. A.D. 350-380). Three seeds of flax (*Linum usitatissimum*) were found at Ona Nagast, and date back to transitional Early/Middle Aksumite and Middle Aksumite times, respectively. One specimen of lentil (*Lens culinaris*) was identified at Ona Nagast, and dates to transitional Early/Middle Aksumite times. A domesticated grape seed (*Vitis vulgare*) was found at Ona Nagast, and, on the basis of the associated ceramics, dates to Middle Aksumite times. Weeds and other seeds have been also tentatively identified at Ona Nagast, and date mainly to Middle Aksumite times. They include clover, darnel, canary grass, dock, amaranth, and chenopod, as well as possible specimens of beans,

grasses, asters, and mustards.

Archaeozoology (Prof. Louis Ch. Chaix, Museum of Natural History, Geneva, Switzerland): Faunal remains from the 1997 field season were examined as well as some of the faunal remains from 1996, yielding a total of 7932 bones from which 2189 (27.5%) were identified as to species. Analysis of butchering marks provided relevant insights into butchering techniques. Domesticated cattle is predominant species, followed by domesticated caprids (sheep and goat). Very few remains of other animals were found. Interpretation of the metrical data obtained on the cattle bones seems to indicate strongly built animals, with short legs. They were horned, but no horn shape could be determined. Most cattle remains are those of adults and old individuals, between three and ten years in age. Only a few remains are those of young individuals. This may indicate the animals were not bred primarily for meat, but were used instead to provide milk and work (plowing and carrying), and possibly prestige. Cattle were butchered, and many of the marks suggest different activities: skinning, dismembering, filetting, etc. It is interesting to note the evidence of tongue butchering for consumption (as is still practiced today). Sometimes, the use of a saw is visible on cattle vertebrae. To date, there is no evidence of zebu cattle.

Sheep seem to be more frequent than goat. There is evidence of twisted horned sheep. but the shape of the goat horns is still unknown. Caprines with short legs are represented by all skeletal remains, and, when compared with other breeds in the lowlands of Eastern Africa, are more similar to European sheep and goats. At present, age and sex of the animals cannot be safely determined, but adults seem to be well represented. Butchering marks or technical marks are well attested. There is evidence of a sawed horn core, probably to use for craft production. Very few remains of dog were collected. Seventeen bones, or fragments of bones, can be ascribed to birds, possibly including some remains of domesticated fowls (*Gallus gallus*). Butchering marks were observed on these bones. The possible attribution of some bones to a gazelle requires more investigation.

Ethnoarchaeology and ethnology (Dr. Cinzia Perlingieri, Dept. of African and Arabian Studies, I.U.O., Naples; Prof. Raymond A. Silverman, Art Department, Michigan State University, East Lansing, Michigan, USA; Prof. Neal W. Sobania, Hope College, Holland, Michigan, USA). In 1997 ethno-archaeological investigations of pottery manufacture were continued by C. Perlingieri. A preliminary survey of the metal-working traditions was also conducted by R. A. Silverman and N. W. Sobania. The investigation of pottery manufacture was directly related to the archaeological analyses. The following aspects of traditional pottery manufacture were examined: production processes, available clay sources in the Aksum region, and a pot's "life" (i.e., manufacture, intra- and inter-community distribution, and household use). Six potters were visited and interviewed: two in the village of Ma Qeono, to the northeast of Aksum; one in the village of Bejerawi, ca. 15 km to the southwest of Aksum; three in the village of Selahlaha, 45 km to the west of Aksum. Observation of the manufacturing techniques and household use of the vessels suggest parallels with evidence in the archaeological record. Firstly, a real continuity in shapes is evident: utilitarian wares are greatly functional and most pots have very simple shapes, with only essential features that do not vary through time. Moreover, decorations on both ancient and modern Aksumite pottery are rare. When present, the decorations seem to have a "functional" purpose, and are related to the social interactions of the household.

A survey of over thirty gold- and silversmiths, seven blacksmiths, and two tinsmiths was also conducted. Investigations included collecting basic biographical information, documenting the types of artifacts made, and the processes used to make these artifacts. Interviews with the metalworkers and their patrons/customers, observations of techniques used in the manufacture of metal objects, visits to churches to examine historical metal objects, and the study of church paintings for clues as to how metal artifacts were used in the church proved very fruitful. These inquiries showed that 1) metalworkers still occupy a specific social niche in Aksumite society, and a particular quarter in Aksum seems to be associated with them; and 2) despite technology and materials which have dramatically changed over the last fifty years, older metal smiths still use traditional tools, such as oil lamps and the hammer-and-anvil, for producing metal artifacts.

History (Prof. Yaqob Beyene, Department of African and Arabian Studies, I.U.O., Naples, Italy).

A preliminary survey of the oral traditions about the history and topography of Aksum was conducted by Yaqob Beyene. On the basis of oral traditions it was possible to ascertain that the ancient name of Bieta Giyorgis was Debra Makeda, suggesting a traditional link with the Queen of Sheba. Traditions about the ancient topography of Aksum which have survived to the present are basically the same as those recorded in the *Book of Aksum*, dating to the 15th century A.D. They confirm the sequence of ancient capital cities, at Mazber, Atsbé and Aksum. Today Atsbé is identified with the plain to the West of Bieta Giyorgis.

Conservation (Dr. Mario Lolli Ghetti, Head, Government Office for Cultural Heritage, Florence, Italy; Mr. Pasquale Musella, National Archaeological Museum, Naples, Italy). A preliminary plan was devised to protect the monumental funerary complex (Tomb 2) at Ona Enda Aboi Zewgé, and short-term measures for its preservation were undertaken. Systematic restoration of excavated artifacts (ceramic, glass, metal, ivory) from all field seasons was also done.

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