

■ ETHIOPIA

The BU/IUO Joint Expedition at Bieta Giyorgis (Aksum, Ethiopia), 2001 Field Season: A Preliminary Report

Kathryn A. Bard
Boston University
Boston, Massachusetts, USA

Rodolfo Fattovich
Istituto Universitario Orientale
Naples, Italy

With contributions by
A. Catherine D'Andrea, Michael C. DiBlasi, Maurizio Forte, Scott Harris, Magaly Koch, Gerald H. Johnson, Andrea Manzo, Cinzia Perlingieri, Thomas Schmid and Stefano Tilia

Introduction

Archaeological and geological investigations were conducted by the joint expedition of the Istituto Universitario Orientale (IUO) and Boston University (BU) on Bieta Giyorgis, Aksum, Tigray, from 5 May to 12 June, 2001, under the direction of Professor Rodolfo Fattovich (IUO) and Professor Kathryn Bard (BU). Archaeologists included Dr. Andrea Manzo (IUO), Dr. Cinzia Perlingieri (IUO), and Dr. Michael DiBlasi (BU). Topographic mapping of Bieta Giyorgis hill was conducted by Dr. Maurizio Forte (CNR, Rome) and Mr. Stefano Tilia (Rome, Italy). Mr. Bartolomeo Trabassi (CNR, Rome) assisted Dr. Forte and documented the fieldwork with digital camera and video photography. Geologists Dr. Magaly Koch (BU) and Mr. Thomas Schmid (Autonomous University, Madrid) conducted fieldwork relevant to remote sensing and soil studies. Geological and hydrological investigations were conducted on Bieta Giyorgis hill by Professor Gerald Johnson (The College of William and Mary, USA) and Professor Scott Harris (Carolina Coastal University, USA) with the assistance of three students (J. R. Soltess, J. G. Matkowski, J. D. Long). Paleoethnobotanical investigations and ethnoarchaeology were conducted by Professor A. Catherine D'Andrea (Simon Fraser University,

Canada). The Authority for the Research and Conservation of the Cultural Heritage (ARCCCH), Addis Ababa, was represented by Ato Telahun G/Selasie and Ato Ambachew Kebede. The Bureau for Culture and Information, Aksum was represented by Ato Fitshum Alemsaget.

Archaeology

Archaeological excavations were conducted at three sites on Bieta Giyorgis: Ona Enda Aboi Zewge (OAZ), Tukul Emeni (TE), and Guadguad Agazien (GA).

OAZ. Excavations were conducted in the OAZ cemetery by Rodolfo Fattovich and Kathryn Bard, with the assistance of Ato Telahun G/Selasie. During the 2001 field season the investigation of excavation unit OAZ IX, opened in 1998, was resumed, and another area (OAZ X/XI/XII) was opened at ca. 50 m to the northwest of OAZ IX. Three graves were also excavated inside the compound of a farmer (Ato Berhane Wolde Michel) at ca 40 m to the northeast of OAZ IX. In OAZ IX (southern sector of OAZ) four new Proto-Aksumite tombs were excavated beneath the man-made stone platform discovered in 1998 (Tombs 9, 10, 14, and 15). These four tombs were vertical pit graves excavated in the bedrock ca. 3 m below the constructed platform. No human remains were found in any of these pit graves and the pottery consisted of Proto-Aksumite wares, mainly basins, but also small cups. In Tomb 9, 12 imported glass beads of Late Hellenistic/Early Roman type were found. In Tomb 10 at least 2 ledge-rimmed basins were decorated with applied serpent motifs.

In excavation units OAZ X, XI and XII (central sector of the OAZ cemetery), a large Proto-Aksumite platform was uncovered. At least 3 tomb shafts were identified in association with collapsed stelae and/or stone slab bases, the largest of which is 6.2 m long. Due to the weight of these large stelae/bases, we were unable to excavate any of these tombs, but the ceramics confirmed a Proto-Aksumite date for these tombs (ca. 400-150 BC). In the southern part of OAZ XII, the Proto-Aksumite platform was disturbed by an intrusive Post-Aksumite house, which is oval in plan. Three partially disturbed pit graves of Proto-Aksumite date were also excavated in the basement of the house of Ato Berhane Wolde Michel. No human remains

were found in these tombs, and the pottery from Tomb 11, though Proto-Aksumite, is characterized by many Pre-Aksumite traits.

TE. This site consists of a small, three-room structure situated on a ridge to the north of OAZ. Excavations by Michael DiBlasi first began in the 2000 field season, and were completed in 2001. Excavations within the structure of Rooms 1, 2, and 3 yielded very few artifacts and no clear evidence of domestic activities such as resource processing or cooking. These excavations provide new information on Aksumite building techniques on Bieta Giyorgis. The walls of TE I were built directly on bedrock outcrops and associated colluvial boulders. After construction of the walls, a layer of sediment was laid down both inside and outside the structure to cover the boulders and bedrock and provide a level living surface. Pottery associated with the structure indicates that it was occupied from Aksumite 2 to Aksumite 4 times (ca. AD 150-700).

GA. Guadguad Agazien is a site on the northern edge of Bieta Giyorgis hill. Excavations at GA were conducted by Andrea Manzo. A structure with five rooms and well preserved living floors was uncovered here. The construction technique is similar to that recorded at TE. The ceramics and a coin (most likely of Caleb's reign) suggest a dating to Aksumite 3 and 4 times (ca. AD 400/450-700). Cleaning the profile along the GA stream, remains of two massive dams were identified. The dams were constructed in a stone and mud mortar technique. The northern (downstream) dam, in the latest phase, was ca. 3 m wide, and shows evidence of multiple phases of construction. The southern (upstream) dam consists of a 1.5/2.0 m wide wall. In a soil stratum under the southern dam some potsherds of Pre-Aksumite type were collected. This suggests that the dam could have been built as early as 700 BC. Near the eastern side of the northern dam, two stone terraces were identified, most likely connected to the use of the dam. Remains of other ancient terraces were also recorded here.

Archaeobotany, Land Use Study, and Vegetation Survey

A total of 96 litres of soil was processed and sorted from sites Guadguad Agazien, Tukul Emeni and Ona Enda Aboi Zewge by A. Catherine

D'Andrea. Macro-remains were very few in number and included seeds of *Brassica*, one cereal fragment, and several unidentifiable seed fragments.

Ethnoarchaeology

An ethnoarchaeological study of land use practices on Bieta Giyorgis was initiated by A. Catherine D'Andrea. Four categories of land use were identified: *d'en* (forest conservation), *wofri* (cultivated land), *wajet* (residential), and several types of *badme* (grazing lands). A sketch map illustrating the distribution of these categories was completed using aerial photos, and boundaries were mapped using GPS. In all land use categories, major plant species present were identified, with a total of 54 species (trees, shrubs, herbs) for all of Bieta Giyorgis. An ethnoarchaeological survey of pottery production was conducted by Cinzia Perlingieri. Twenty-three potters in local villages were interviewed about materials and production techniques. Several possible clay sources for ancient pottery production were recorded, and clay samples were taken for comparative analysis.

Survey and Topography

Using TLS, Stefano Tilia established a network of fixed stations in order to permit a complete topographical coverage of Bieta Giyorgis hill. Maurizio Forte complemented this procedure by using a differential GPS capable of offering a high degree of precision in geo-referencing any given point. Forte also collected data to construct a DEM and to reconstruct the ancient landscape on the hill.

Geology

Geological research was conducted by Gerald Johnson and Scott Harris, assisted by their students. The objectives of the geological research were: 1) To identify and map the distribution of rocks and sediments on Bieta Giyorgis using field techniques and GPS; 2) To establish the hydrogeologic framework of the Ona Nagast plain and Baati Hatsin uplands, and 3) To determine the relationship between the geology of Bieta Giyorgis and selected human activities. The geological research of this season indicates that the Aksumites relied heavily

on geologic resources for their survival. Water, soil, and building materials were available on Bieta Giyorgis in sufficient quantities to sustain their basic needs. Extensive quarrying took place to the west of Mai Agam, for stelae and building stones. Quarrying was also carried out at Ona Nagast and OAZ. Based upon an analysis of their composition, texture, and form, most stelae in the OAZ area were quarried locally on Bieta Giyorgis or excavated from colluvial deposits on the escarpment and flanks of the amba. In contrast, most of the chalcidonic material and grinding stones found on Bieta Giyorgis were brought there from elsewhere. Brown chert, jasper and flint are indigenous to Bieta Giyorgis. This season's investigation of structural geology and faulting patterns on Bieta Giyorgis will provide a basis for understanding the hydrogeology of the hill and the exploitation of water resources in ancient times.

Remote Sensing and Soil Survey

The objectives of these studies, conducted by Magaly Koch and Thomas Schmid, included: 1) relating different land cover types to the spectral signatures found with Landsat ETM+ for an area in and around Bieta Giyorgis; 2) identifying characteristics of the soil land cover types found on Bieta Giyorgis, and 3) assessment of a possible soil study in order to be able to relate soil characteristics with archaeological findings. A preliminary field survey was conducted by selecting different landcover types (soil, rock and vegetation) in the region of Bieta Giyorgis. In order to be able to make an assessment for a future soil survey, different soil profiles were taken at selected points related mainly to archaeological sites in the Bieta Giyorgis area. Samples were collected for future analysis.