Reports and Commentaries

Rano Raraku: A brief overview of six seasons of excavations, three seasons of conservation interventions, and a heritage management program, 2010-2012

Jo Anne Van Tilburg and Cristián Arthevolo Pakarati

Introduction

The Easter Island Statue Project (EISP), of which the authors are co-directors, has invested more than three decades in archaeological survey and excavation on Easter Island. This paper summarizes our excavation program in Quarry 2, Rano Raraku Interior, of statues RR-001-156 (Figure 1) and RR-001-157 (Figure 2). From the inception of our project in 1982, our goal has been to create an island-wide monolithic and portable statue (moai) inventory and to compile an historical image record comprising a biography of each statue. This inventory is a bedrock of archaeological research but is also indispensable to heritage management (Letellier 2007). To date, we have accounted for 1,300 moai including complete (as opposed to intact) statues, heads, torsos, fragments, and shaped blocks (Table 1). The latter are considered to be evidence of human activity in the form of incomplete or abandoned projects elucidating energy investment. The most recent object entered into our collaborative online database (DATASHARE) is a red-stone torso submitted by Enrique Tacki M. of the Oficina Provincial, Corporación Nacional Forestal (CONAF).

The EISP excavations summarized here follow completion of our extensive mapping (Van Tilburg et al. 2008a) and are the first legally permitted (CMN ORD 5467-09) and controlled, scientific excavations in Rano Raraku since 1954. Our project is also the first stone conservation and preservation pilot program ever conducted anywhere in Rano Raraku. Previously, all but one of the 22 standing statues in Rano Raraku interior, including those described here, were disturbed or exposed through unscientific and undocumented digging. Furthermore, over 90 statues throughout Rano Raraku interior and exterior were disturbed from 1868 to 1989. While this vandalism is deplorable, our database mitigates at least some of this regrettable damage.

Research Perspective: The Rapa Nui “Paracosm”

Our research considers ancient aesthetics from the point of view of cognitive archaeology set within a holistic/contextual framework (Van Tilburg ex press). We ask two basic questions.

Figure 1. RR-001-156, ventral view. EISP Archives.
how did symbols interact with belief in order to capture the creative imagination, encourage cooperative social action, and promote sustainable production sufficient to achieve megalithic construction?  
- what was the pulse of community change over time in a limited natural environment, and how did artistry, as reflected in sculpture, contribute to or mitigate that change?  

We discern an overall continuity in material selection and object situation and an association of statue numbers, size, styles, embellishments and technological innovation with variant terrain and two ethnographically known geographical political regions. These consistently articulated, regional distribution patterns are also present in the special use areas of Poono and Rano Raraku. We hypothesize, therefore, an interaction of locality with universality. That is, the moai was the universal ideal objectifying a narrative of differential status but also embodying multiple, particular stories that localized shared history.

Conservation Initiative

Collaborators on the conservation initiative of our project are Dr. Christian Fischer of UCLA’s Cotsen Institute of Archaeology and Mónica Bahamondez P., Director of the Centro Nacional de Conservación y Restauración in Santiago, Chile. Their report, which is forthcoming, describes a pilot project based on extensive, previous research and characterization of Rano Raraku tuff (cf. Bahamondez P. 1998; Bahamondez P. & Valenzuela 2005; Van Tilburg et al. 2008b; Wendler et al. 1996). Their protocol includes environmental monitoring and treatment expected to stabilize the statues at their current state of deterioration and to mitigate the detrimental effects of an adverse climatic environment. Sensors were installed to record soil moisture and temperature, surface temperature of statues, sunlight exposure, as well as a weather station to monitor the site’s microclimate (wind, temperature, and humidity). Data are downloaded bi-weekly and collection will last for the 5-year duration of our project.

Lake Mapping

Another pilot program completed this year was the mapping of Rano Raraku lake using side scan sonar to amplify and clarify changes in topographical parameters and locate any evidence of submerged quarries at the lake edge. This work, which builds upon earlier studies (cf. Fenley et al. 1991; Mieth & Bork 2010), will make further use of our environmental data. Mapping was accomplished with Dr. Shelley Wachsmann, Nautical Archaeology Program, Texas A&M University and Jeffrey Morris, Underwater Scientist, SunMar Research.

Excavations

The target statues for this project (RR-001-156 and RR-001-157) were, so far as we know, first disturbed by the Mana Expedition to Easter Island in 1914-15 (Routledge 1919: Figures 70-71). Other intrusions by the Franco-Belgian Expedition (1935) and the Norwegian Archaeological Expedition (1954-55) followed. None of these activities reached the base of either target statue and no scientific reports were produced by anyone involved.

The target statues are of high archaeological value due to complex dorsal petroglyphs, previously partially exposed but never documented. These carvings are formally different from those on the dorsal side of
Journal of October 2012

BM-MOM-001, a statue in the British Museum (Van Tilburg 2006) We accomplished laser scanning of the British Museum statue but our proposal to do the same with the target statues was rejected by the Consejo de Monumentos Nacionales, Isla de Pascua. We accomplished documentation of the petroglyphs through digital photography, metrics, and scale drawings (Figure 3).

Quarry Two: Historic Intrusion Levels

Statue RR-001-156 was 1.32m above ground prior to excavation and 6.60m total height. Statue RR-001-157 was 3.17m above ground and 7.16m total height. Sections depicting the existing grade to 3m depth were augmented by historic photographs and metrics to produce a series of digital composites providing an overview of historic levels. This allowed us to correctly estimate soil level changes from 1914 to the present and to calculate accumulation rates at about 1cm per year for 80 years, and suggested where we might discern previous intrusions in the stratigraphy. Deposition levels suggest the statues were upright in place for ca. 500 years.

Screening of Deposits

We removed and screened overburden at the back of Quarry 2 (Figure 4) on a sorting board. We also excavated a directly associated sone pase and an adjacent hare panga foundation. Backfill from each individual excavation was isolated. Deposits in squares more distant from the statue were removed with square head shovels and trowels. Smaller tools were frequently required.

Archaeological Collections

The Excavation Finds Log assigned a pre-printed number to each field object collected, and materials classifications.
were established for level bag collections (Figures 5 & 6). All tests, of which 504 were collected, were measured in a standard manner and individually photographed. An X-ray fluorescence (XRF) study employing about 189 of the implements was initiated for comparison with a sample of data collected on 36 basalt quarries. Several examples of a interesting object that may be a scribing tool were found in association with both statues. They are either basalt or obsidian and consist of a rough and varying shape with a single, sharp and flaked point. Their fortuitous shapes recall the varied shapes and flaking techniques used to make mata’a. One basalt mata’a was recovered, as was 800g of red pigment.

**Carbon and Human Bone Collection**

Samples of both carbon and bone were identified at nearly all levels by both digging and screening, and were collected with gloves and/or metal tweezers and stored in archival safe plastic vials. The dates of the most recent fires in the interior of Rano Raraku are recorded in the EISP archives by reference to historic photographs. Routledge (RGS/WKIR) reported carbon “just below the surface,” at the “5 inch level at 4 feet” from the back of one of our target statues, as well as “at the 18 inch level” and at what she says are 2, 3, and 4 feet levels (Van Tilburg 2003). We found quantities of carbon throughout previously excavated levels. Below her 4 foot level, the carbon was in unexcavated levels. Routledge’s unpublished notes (WKIR/WS/MS/9; Van Tilburg 2003) report at least one burial located “at the level of the bas-relief ring design” for RR-001-156. She described the remains as follows:

![Image](image-url)

**Artifact material categories**

![Chart](chart-url)

Figure 4. Artifact collections by materials category and statue (unit), EISP Archives.
Skeleton of which long bones, base of skull and patella were identified. Position: head to the right of the statue and long bones to left of statue.

In the process of attempted removal, the bones were damaged and then, presumably, returned to the excavation. However, we recovered a large fragment of either a patella or skull during our first field season in one of the carving canals of Quarry 2, located behind RR-001-157. It is probable that Routledge, or someone with her, cast some bones aside rather than replacing them in her excavation.

Features

The most interesting features associated with both statues were revealed at and under their bases and in bedrock between the two statues, an area previously unexamined. A large and deep posthole with abrasion marks, along with rope guides, was cut into the bedrock (Figure 7). Presumably used to lift statues upright, these features appear to have been used for statues removed prior to those excavated.

Backfill

In April 2012, both statues were backfilled with separately stored dirt from each discrete excavation. The first layer of fill consists in both cases of large stones and rubble, followed by a layer of smaller stones and then the compacted backdirt. The environmental monitoring equipment remains in place. Laboratory analyses of samples are underway. Further excavations are planned in the same area.

Acknowledgments

Our primary funding agency was the Archaeological Institute of America Site Preservation Committee. Digital survey equipment and data analysis support were provided in 2002-3 by Dr. Peter Boniface, California Polytechnic University, Pomona, and by Trimble, Inc. in 2004-7. Laser scanning equipment and London field personnel were provided in 2007 by Zoller + Fröhlich GmbH. Travel funds for Mónica Bahamondez P. to Los Angeles were provided in 2007 by the Cotsen Institute of Archaeology at UCLA; other funding was

Student Participants include: Isías Hey González, Joaquin Soler Hon, Rafael Paoa Rapu, Tiktehuru Astete Paoa, Felipe Rubio Munita; Season IV. Bañer Tuki Haoo, Taria Maitai Riroroiko Rapu, Melissa Pakarati. Margarita Pakarati, Nicholas Fredes Hey, Martin Hey González Atahanga Icka Pakarati, Rosa Icka Paoa, Anastasia Ika Paoa, Season V. Rosa Lucia Icka Paoa, Anastasia Ika Paoa, Bañer Tuki Haoo, Alicia Hey, Ana Pakarati Icka, Patricio Madariaga Paoa, Season IV. Bañer Tuki Haoo, Patricio Madariaga Paoa, Rano Karaka Lake Mapping: Shelly Wachemann, Ph.D., Jeffrey Morris, Susan Morris, Patricio Rodrigo Madariaga Paoa and Bañer Tuki Haoo. EISP staff, in addition to the authors, who participated: Alice Hom, Kim Ahn Hoang, Desidee Whitmore and Eric Branda.
Reports and Commentaries

Figure 7: RR-001-156, bedrock post hole and rope guide, toki in situ, EISP Archives.

References


