

# Niku VI

## RESEARCH UPDATE

The Niku VI expedition in May and June of 2010 was the largest, longest, most complex and most expensive TIGHAR expedition ever, and the most successful. Just how successful must await the analysis of the artifacts, faunals (bones, clam shells, etc), and data collected during the expedition – a process that has barely begun. Here's what we know so far and what we're doing to find out more.

## DNA

No “touch” DNA was found on the artifacts collected during the Niku VI expedition. That's disappointing but not surprising. We knew the odds of retrieving DNA from objects exposed to Nikumaroro's harsh environment for over 70 years were slim to none, but we gave it our best shot. The good news is that there is still a possibility that DNA can be extracted from other material recovered from the site.

## THE PUTATIVE POOP

In 2007, our excavations at the Seven Site produced a few pieces of something that looks like chunks of brown dirt – except there is no dirt at the Seven Site. The ground surface there is comprised of finger-sized pieces of calcium carbonate known as coral rubble. We wondered if the brown chunks might possibly be fecal material that was near, or even in, the body





of the castaway as it decomposed. Dr. Kristin Sobolik, an anthropologist at University of Maine, Orono with extensive experience with prehistoric “coprolite” (fossilized feces) examined the material and suggested that we consult Dr. Cecil M. Lewis, Jr. of the Molecular Science Laboratories at Oklahoma University in Norman, OK. Dr. Lewis is one of the few scientists who have been successful in extracting ancient DNA from prehistoric bone and fecal material. Our brown chunks are now in Oklahoma where Dr. Lewis will try to discover whether there is human DNA present.

## THE FICKLE FINGER

Dr. Lewis will also try to extract DNA from the one bone recovered from the Seven Site that may be human. It's part of a phalanx – finger bone – and at first we assumed it was from the turtle whose remains we found nearby (sea turtles have finger bones in their flippers.) But when TIGHAR's Senior Archaeologist, Dr. Tom King, catalogued the turtle bones he discovered that we have only parts of the carapace and plastron (the shell and underbelly). No limb bones. If whoever brought the turtle to the Seven Site didn't bring the legs, how did a phalanx get there? Strange as it seems, human and turtle phalanges look very much alike and we know that none of the hand bones of the castaway were found in 1940. Could the bone be a human finger? Tom sent the mystery bone to TIGHAR's forensic anthropologist Dr. Karen Burns asking if she could say with certainty that it was or was not human. She couldn't. So now the well-traveled phalanx is at Oklahoma University where Dr. Lewis will try to extract human DNA.



## ARTIFACTS

In 2001 and 2007 we used metal detectors to identify specific areas or “units” to excavate. This time we methodically and meticulously dug nearly the entire area. Not surprisingly, we found many non-metallic artifacts that we had missed in the earlier searches. Some, such as more shards of shot Coast Guard crockery, are not surprising while others, such as a tiny red glass bead, are totally puzzling.

Of particular interest are two glass containers. Both are broken and some pieces are missing, but in each case enough of the object is present to make a general identification.

Artifact 2-9-S-1 is a small glass jar of a type known as an “ointment pot.” It has a flared base and the interior bottom is rounded so as allow the contents



to be scooped out with a fingertip. It originally had a screw-on lid but no lid was found. We don't know what it contained except to say that the amount was three ounces or less. We haven't yet found an exact match but ointment pots of this general type were popular for cold

cream and other feminine personal care products as early as 1900. This appears to be another gender-specific artifact. Research continues.

Artifact 2-9-S-50 is a bottle that contained a Mennen product. This bottle was more shattered than the ointment pot and we don't have much of it, but we have enough to tell that it was about a three-ounce size and that the word Mennen appeared vertically on both side edges in a distinctive art-deco style. Both Mennen Skin Bracer and Baby Oil were sold in similar bottles in the 1930s and '40s but we have not yet been able to pin down an exact match. In any case, it's the fourth glass container found at the site that held three ounces or less of a personal care product.



Many, many more artifacts were collected and await identification and analysis.

Ten artifacts are currently at a materials analysis lab in Delaware to determine what they're made of.

Eight pieces of broken glass are being examined by an archaeologist in Vermont with special expertise in identifying chipping on sharp edges that suggest secondary use as a tool.

The estimated cost of expert artifact analysis contracted for so far is \$3,200.

Answers are expensive.

## FAUNALS

Careful excavation revealed that the Seven Site is dotted with the remains of small fires on which meals of bird, fish, possibly turtle, and maybe even rat were cooked. There are also deposits of clam shells of several different varieties. We already know that the fish bones we collected at the site in 2007 are not typical of meals eaten by Pacific islanders. Veterans of the Coast Guard station tell us that when they had cookouts they brought hot dogs from the mess hall. Are all of the meals cooked and eaten at the Seven Site attributable to a western castaway or are some meal sites more typical of islanders? It's an important question because if we can figure out how much food the castaway(s) consumed we can get a rough idea of how long they were there. Also, if we can find out whether any of the birds were juveniles we can get an idea of the time of year they were killed.



Something over two thousand fish bones, most of them smaller than a house key, are now at the Anthropology Department of the University of Alabama in Birmingham for analysis.

A similar number of bird bones are at the Bishop Museum in Honolulu to be identified and cataloged.

The mollusks are in Guam with Micronesian Archaeological Research Services.

The estimated cost of all professional faunal analysis contracted for so far is \$10,600.

Answers are expensive.

waves, the ships were acceptable platforms for only a relatively shallow search. To conduct a search at depths well below 300 meters we'll need a more sophisticated ROV with a much longer tether and a ship with "dynamic positioning" – powerful thrusters linked to a GPS system that allow the ship to maintain a rock-solid position over a particular spot on the ocean bottom. The daily charter rate for such ships is at least double the rate for the ships we've used in the past.

Answers are expensive.

## The Underwater Search

The reef slope drops off much more steeply than anyone knew. The ROV got great HD video footage of what is basically a cliff face that is too steep to catch aircraft wreckage. The only man-made objects encountered, aside from debris from the *Norwich City* shipwreck, were what appeared to be a semi-circle of wire (but may also have been a piece of "whip coral") and a couple of pieces of rope. Perhaps coincidentally, these objects were seen deep on the reef slope below where we think the airplane went over the edge.

Despite frustrations and mishaps, the ROV search gave us the first detailed picture of the underwater environment at Nikumaroro below scuba depth (about 100 feet). We had the capability to search down to 300 meters (1,100 feet) but it turned out that that's where we need to begin to search. At that depth you reach the base of the cliff where the slope begins to shallow out. It's where anything that went over the reef edge that was too heavy to be swept away by surf or currents is most likely to have come to rest. Three hundred meters is also the transitional area where the last faint traces of sunlight from the surface fade to the total blackness of the deep ocean. Airplane wreckage in this "twilight zone" should not be obscured by coral growth.



**"We're  
gonna need  
a bigger  
boat."**

During the Niku VI expedition the ROV was operated from both *Nai'a* and *VuSI* – good ships, but they were chosen for their suitability to transport and support the land archaeological team. With no way to hold a steady position while being pushed about by wind and