The Ban Chiang UpDATE

Newsletter for the Friends of Ban Chiang

*Preserving a **UNESCO** World Heritage Site Issue #6 Fall/Winter 1997-98*

From the Director. . .

We've been challenged!

A challenge grant has been offered to the University of Pennsylvania Museum for the Ban Chiang Project. Raise $200,000 by October 2000, and the donor will give $100,000! Such funding will place the Museum's research on the archaeology of Thailand on a more secure financial basis!

Our first priority is to fund a visiting post-doctoral Fellow to undertake state-of-the-art analysis of the pottery vessels recovered from the two excavation seasons at Ban Chiang. The over 500 reconstructed vessels on loan from the Thai government can provide fundamental insights into the ancient economy, technology, and funerary ritual.

The funding will also support research and editorial assistance for both the Ban Chiang Project and the Thailand Archaeometallurgy Project, fees for ceramic and metals analysis, and other much needed aspects of our ongoing work.

We need <u>your</u> help! To help us meet this generous challenge, I urge you to renew your status as a Friend of Ban Chiang. If you can, give an increased or additional gift. Use the address form in this newsletter, or contact me at 215-898-4028 if you prefer to donate assets or a planned gift. All new contributions count toward the "match," and your contribution counts 50% more than before! Also, please help us find new Friends. Both individual and corporate Friends are needed. All new contributors will automatically become Friends of Ban Chiang.

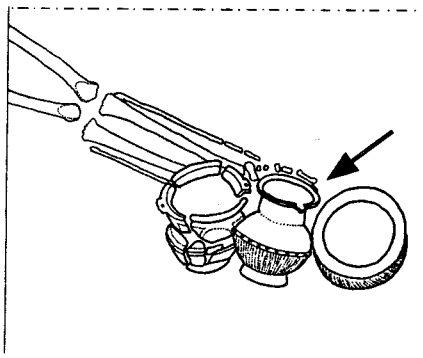
In this issue

Skeletal remains from burial sites such as Ban Chiang provide a very special type of evidence of the human past. A highly exacting study, osteological analysis of human skeletons provides fascinating clues about the past, such as information on health, diet, life span, race, and demography. Combined with cultural evidence, skeletal evidence can tell us of prehistoric burial rituals, social classes, and whether males and females, young and old were differentially treated.

Physical anthropologists Michael Pietrusewsky and Michele Douglas (Kell) have each contributed articles in this issue on their experiences and research with the Ban Chiang skeletons. Mike has been involved in this work from ground zero - in the excavation trenches. For her doctoral dissertation Kell focused on palaeopathology - the evidence for disease and trauma. Their work will be reported in one of the first monographs to be published by the Ban Chiang Project and funded by Thailand's John F. Kennedy Foundation.

Your dollars at work

Gifts by Friends of Ban Chiang continue to support technical aspects of the research. This past summer, contributions funded the extraction of phytoliths from soil inside a vessel interred with BC Burial 44 (arrow in illustration), the lowest burial excavated from the site so far. Dr. Naomi Miller of MASCA (Museum Applied Science Center for Archaeology) determined that this vessel had contained rice. Dr. Lisa Kealhofer directed the extraction of the phytoliths at her lab in Williamsburg. Phytoliths - microscopic silica bodies produced by some plants - hold carbon that can be dated by AMS. We are sending the phytoliths to the Radiocarbon Laboratory at Riverside, California in high hopes of an accurate, well provenienced date for our lowest burial! ❖



BC Burial 44

Joyce C. White, Ph. D.
Director, Ban Chiang Project

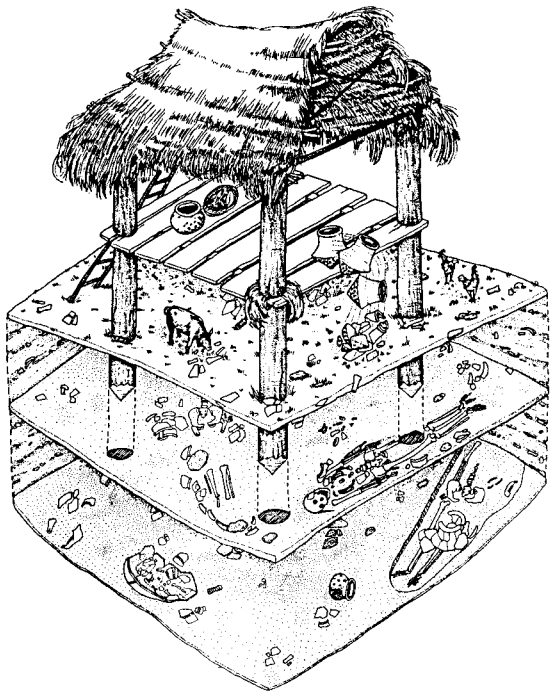
University of Pennsylvania Museum of Archaeology and Anthropology,
33rd and Spruce Streets, Philadelphia, PA 19104-6324 (215)898-4028

Skeletons Beneath A Village

by Michael Pietrusewsky

Throughout my scholarly career, I have been intrigued with the demography and genetic relationships of ancient peoples of the Western Pacific. In 1969, not long after receiving my Ph.D. from the University of Toronto, I arrived at the University of Hawaii to teach physical anthropology. While my doctoral thesis was on human skeleton remains from Tonga in Polynesia, I was soon enticed by Bill Solheim, now Emeritus Professor, to pursue research in Thailand. The lure of this exotic destination proved irresistible, and less than a year later, then graduate student Jean Kennedy and I were on our way to Bangkok. We examined skeletons from the 1966 excavations at Non Nok Tha, another important site in northeast Thailand, which were housed in the late Sood Sangwichien's laboratory in the Siriraj Hospital.

Around this time, Chet Gorman was finishing his Ph. D. at Hawaii and soon would be joining U. of Penn and organizing the field program at Ban Chiang. Chet envisioned a multidisciplinary, multi-national project that would introduce international standards for archaeological research to Thailand. With the generous support of the Ford Foundation, Chet arranged for me and several other specialists (e.g., Douglas Yen, palaeoenthnobotanist), to join him and FAD (Fine Arts Dept.) codirector Pisit Charoenwongsa for the first season (1974) of excavations at Ban Chiang. Living in a small rural village in northeast Thailand gave research a new dimension for me. The work of excavating was especially demanding given the complexity of the site and was compounded by the unrelenting heat. The excitement of finding yet another burial, no matter how fragmentary, far outweighed any petty hardships.



The "Splatt Theory": An artist's conception depicting ancient burials which are interred deep beneath a vibrant village.

Illustration by Ardeth Anderson

Swirling around the serious business of research were the social activities of a Thai village. Highlights included a local style wedding and the annual *bong fai* (fertility) festival of drunken rocketeers, men shooting huge rockets into the sky from rice fields.

On the scholarly side, there was plenty of opportunity to discuss (often with Chet holding court) the day's work over an evening meal amongst the team members and with other visitors who found their way to "Ban Chiang University" that summer.

The political climate of Southeast Asia in the early 1970's lent an extra dimension of nervous awareness. A window of opportunity allowed me to venture across the Mekong River to Vientiane Laos, albeit on the wrong ferry which landed downstream from the customs office during a heavy downpour. By hailing a taxi and then pretending to enter at the correct location, I was able to elude the feared gendarmes. The ensuing trip to quaint Luang Prabang, a former capital of Laos with many temples, nestled among the mountains, was well worth the perils that preceded it.

Many Thai students, some with royal titles, participated in the first season of fieldwork at Ban Chiang which produced 46 skeletons. The students were all introduced to the basics of human osteology such that when the skeletons arrived in Hawaii, each parcel containing

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some skeletal element had been correctly identified and marked, greatly facilitating the work in the lab.

Many students at the University of Hawaii assisted in the initial analysis of the human skeletal remains from both seasons of work, which was completed by 1980, just prior to Chet's death. Several articles on the human osteology of the site have since been published.

A decade later Michele (Kell) Toomay Douglas undertook a re-analysis of the skeletons from both Ban Chiang and Non Nok Tha for her doctoral dissertation. In the next article, Kell describes some of her fascinating findings concerning trauma in Ban Chiang skeletons. Kell and I are now in the final stages of preparing the monograph that will be the basic reference for the skeletal remains excavated from Ban Chiang. The final monograph on the human skeletal remains from Ban Chiang will soon be completed and made available to all those interested in what studies of skeletal remains can tell us about the people who were buried there so many millennia ago. ❖

Michael Pietrusewsky is Professor of Anthropology at the University of Hawaii and is currently Visiting Research Professor at the International Research Center for Japanese Studies in Kyoto, Japan.

BCES Burial 26. A child who had some kind of leg deformity (circled), was well treated at death. Many bronze and iron bracelets as well as a scatter of sherds was buried with the individual.

Bones Tell of Life in Ancient Ban Chiang

by
Michele Toomay Douglas

I began "hanging around" the Physical Anthropology Laboratory at the University of Hawaii in 1983, working toward a Master's degree, and generally volunteering for anything and everything, sometimes getting paid for having fun. Every day I passed a number of large, green cabinets with locked doors, which housed the Ban Chiang collection. These remains were "real" and "old" and not to be handled by any amateurs or neophyte students.

After 10 years of examining human skeletons from all around the Pacific, the Ban Chiang remains needed to be re-examined, and I was ready to accumulate data for a doctorate. Methods in our field had changed dramatically in the twenty years since the first osteological analysis was done in the 1970s. Because this important skeletal collection had been carefully curated, repeated investigation was possible - an important lesson in research.

In ancient Ban Chiang, the deceased person was typically buried lying down with legs extended and arms along the sides. Often personal adornments were included, such as bracelets, as well as pottery vessels which may have contained food items. Infants were placed inside large ceramic vessels which were then buried in the ground. Because the site was used as a cemetery and a village for such a long time, there

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were many disturbances. A hole dug for a fire pit may disturb a burial, removing portions of the skeleton which are then missing when we examine the remains in the laboratory.

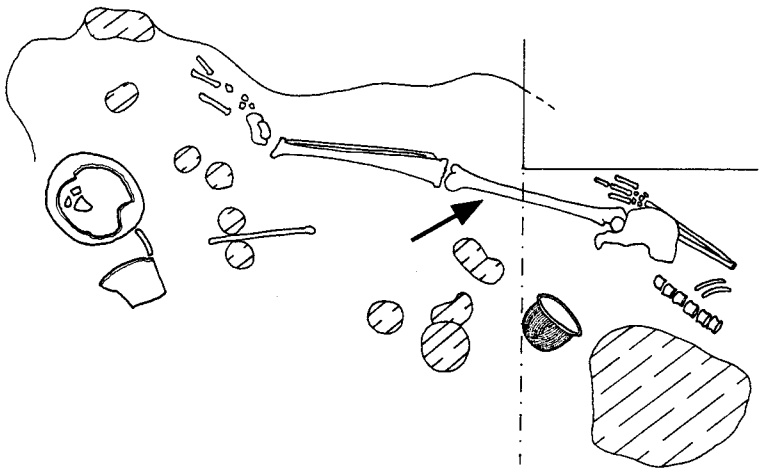
All of the bones from each burial identified by the excavators in the field were cleaned in water using small picks and tooth brushes. After the bones were air dried, any breakage was repaired using glue, tape, and sometimes a sandbox to brace the joins. Once the glue had dried, all the bones of the skeleton were arranged on a table, as if the individual were lying there on the table top. This makes it very easy to see how much of the skeleton is present and what is missing. The bones were then measured, photographed, x-rayed, and examined for indications of age, sex, disease, and distinctive characteristics such as genetic markers or unusual toothwear. Finally, the small bones were packaged in plastic bags to prevent loss, and all of the remains were replaced on a tray within the cabinet so they could easily be found and retrieved if necessary. This process was repeated 140+ times in the course of examination of the Ban Chiang collection!

We know that the collection represents a village populationbecause there are individuals of all ages present in the sample, from the tiniest bones of a fetus to those of individuals more than 50 years old. Males (n=63) and females (n=60) are nearly equally represented. An individual born at Ban Chiang would be expected to survive up to 29 years, much less than our current life expectancy of 70 plus!

Most of the time we cannot tell the exact cause of death from the skeleton. Most of the things that kill us, even today - for example, heart disease, cancer (except bone cancer), or hanta virus - do not have the time or inclination to affect the bones. One thing that does leave a signature on bone is a fracture or other trauma.

In young children, a fractured bone can completely remodel until it appears essentially as it did before the trauma; however, in adolescents and adults, fractures may heal but a scar in the form of extra bony growth or an alignment defect will still be visible after death.

Examination of the bones that are fractured, the location of the fracture, the type of fracture, and the healing can help determine how the fracture may have occurred and whether or not there was any treatment for the injury (such as straightening). Accidental injury is typically random: a trip and fall or a hand caught beneath a rock; while injuries sustained in fighting or warfare usually exhibit patterns: for example, only males are affected, or lots of forearms are broken (called a "parry" or defense fracture), or perhaps all the fractures of the skull are oval-shaped like a sling stone.



BCES Burial 30. Although only fragmentary remains were recovered, this female, aged 20-25 had a fractured femur (see arrow) that had completely healed before her death.

In the Ban Chiang collection, the presence of healed fractures of the skeleton suggests an active lifestyle but does not suggest the presence of interpersonal violence (fighting) or warfare. Two of the fractures identified are of the process of the lower neck vertebra (the "lump" at the base of the back of your neck) which is called a shoveler's fracture because it was first identified in men shoveling clay. Four people had healed fractures of multiple ribs which are typically sustained in a fall. Two children were identified who might have had fractures of their clavicles during birth. Fracture of the clavicle

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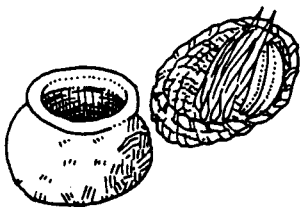
occurs in 2% of modern births. Two men had fractures of the long slender bones of the outside of the hand, and one male and one female recovered fractures of the large bone of the thigh.

Basic fracture treatment is splinting of the fracture so that it does not move and thus is less painful. More advanced treatment necessitates some knowledge of anatomy to assess the fracture for crookedness and then straighten the bone before immobilizing it. While all of the fractures at Ban Chiang had healed, implying that they were at least stabilized, many were crooked and thus suggest that advanced treatment knowledge was not available.

As interpretation of the osteological data proceeds, we will continue to add flesh to the bones of the ancient inhabitants of Ban Chiang. ❖

Michele Toomay Douglas, Ph. D.
Fort Worth, TX



Spread the word, renew your support – every contribution is gratefully received!

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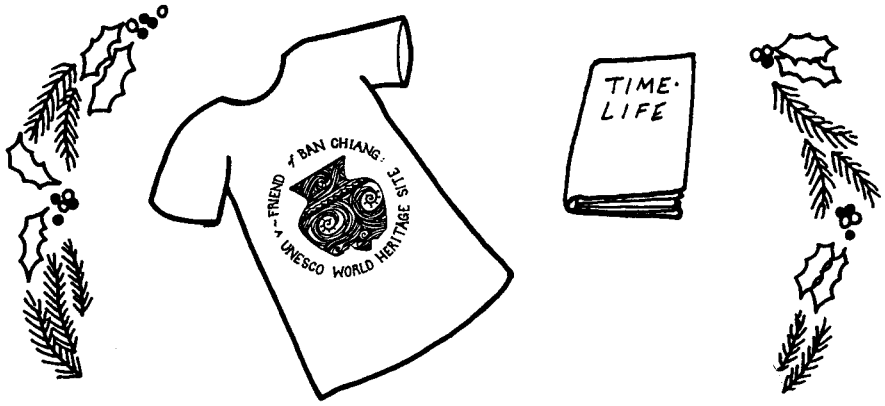

Buy that special someone a one-of-a-kind FOBC T-Shirt for the holidays this year (50/50 cotton-poly white shirt with large terra-cotta FOBC logo on its front. Also available is the *TimeLife* book, *Southeast Asia: A Past Regained.* Both the T-shirt and the book are each specially priced at $10.70 (tax included), please make checks payable to TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA and send check and order form to the Ban Chiang Project.

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-Levels of Giving

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-Send to:

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University of Pennsylvania Museum
of Archaeology and Anthropology
33rd and Spruce Streets
Philadelphia, PA 19104-6324

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☐ I would like more information about the Ban Chiang Project.

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LAB *notes*

❖ **Kell Douglas** (Michele Toomay Douglas) visited the Lab in May to discuss the volume on skeletal analysis of Ban Chiang that she and Mike Pietrusewsky are currently writing. Between feasts of Ethiopian and Burmese food, Kell and Joyce managed to review monograph publication procedure with the Museum's publication director Karen Vellucci (also an FOBCer).

❖ **Alissa Hinckley** has returned to work as a part-time employee at the Ban Chiang Lab. A former work-study student for Ban Chiang, Alissa is helping Joyce to compile charts on the pottery for Volume 1 as well as other database management tasks. Alissa is currently a Masters student in the Library and Information Science program at Drexel University.

Recent Publications:

Michael Pietrusewsky
1997 "The People of Ban Chiang: an early bronze site in northeast Thailand." Bulletin of the Indo-Pacific Prehistory Association, volume 16, pages 119-147.

William Vernon
1997 "Chronological variation in crucible technology at Ban Chiang: a preliminary assessment." Bulletin of the Indo-Pacific Prehistory Association, volume 16, pages 107-110.

Michele Toomay Douglas
1997 "A preliminary discussion of trauma in the human skeletons from Ban Chiang, northeast Thailand." Bulletin of the Indo-Pacific Prehistory Association, volume 16, pages 111-117.