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Researching Madagascar

Madagascar, the largest island in the Indian Ocean, was visited in June-July by **Atholl Anderson, Geoffrey Clark, and Simon Haberle** in a joint project investigating the island's intriguing palaeoenvironmental and human history. The multi-disciplinary project, headed by **Atholl Anderson**, involved colleagues from Oxford, Cambridge and Adelaide universities and Radimilay Chantal of the University of Antananarivo/Museum of Art and Archaeology. Lying only 430 km from the east African coast the timing of human arrival in Madagascar is uncertain with cut marked bone from extinct species of lemur and pygmy hippopotamus dated to 4000-2000 years ago while archaeological deposits are more recent and have an age ~1500 years ago. Muddying the waters further, is the possibility that some now-extinct species of megafauna were

still living in the 2nd millennium AD, and that a shift to a markedly drier climate had a dramatic impact on the flora and fauna. Fieldwork examined sites in the southwest of the island where the remains of extinct animals, some bearing evidence of butchering, had been reported earlier work. The research team of 13 to 14 people packed into two Landrovers and camped at study locations with wonderful field support from our Malagasy colleagues and students as well as the local people. The numerous excavation materials and sediment cores from the visit are now being analysed and they



Lucien Rakotozafy and students from the University of Antananarivo excavating at Ambolisatra.

will help to refine the chronology of human arrival in Madagascar and answer questions about the demise of the island's spectacular megafauna.

In Other News

At the invitation of the China Maritime Museum, **Judith Cameron** presented a paper, 'New archaeological evidence for the movement of Yueh spinners into mainland Southeast Asia, Taiwan and insular Southeast Asia during the late pre-historic period' at the International Conference on the Topic of Navigation: Traces of Civilizations, Shanghai, August 25-27.

Katherine Seikel received a 2011

Preservation Fellowship through the Global Heritage Fund in support of her research on Pohnpei, FSM.

On March 23 **Jack Golson** launched John Mulvaney's autobiography, *Digging up a Past*, at University House. His address on that occasion has been published in *Australian Aboriginal Studies: Journal of the Australian Institute of Aboriginal and Torres Strait Islander Studies* 2011(1): 106-108. **Jack** was also

asked to write an obituary for the Australian anthropologist Murray Groves, who died in May. This has just been published in *The Journal of the Polynesian Society* 120(2): 109-112. Murray and **Jack** were consecutive editors of JPS, in Auckland, **Jack** in the late 1950s and Murray in the early 1960s.

Geoff Hope has been appointed as a Fellow of the College of Asia and the Pacific.

More on the Vanuatu Land Turtle

In Mid May Stuart Hawkins visited the Australian Museum in Sydney to study *?Meiolania damelipi* (Vanuatu land turtle) morphology to better understand this new species and how it compares to other Meiolaniid species. Dentary and maxillary ?

M. damelipi bone fragments from Vanuatu archaeological sites were identified for the first time by careful comparison with Meiolaniid type specimen held in the collection. This is providing new insights on the *?M. damelipi* phenotype and its evolution, as it

appears to have a three row jagged tooth like beak, whereas Meiolaniid usually have beaks with three flat rows. This was most likely an adaptation over time by land turtles to a tropical island ecosystem.

East Timor Fieldwork



Some members of the Timor field crew.

Sue O'Connor, Sally Brockwell and Jack Fenner have just returned from a successful field trip in East Timor. They were assisted by **Tim Maloney**, anthropologist Sandra Pannell, and two Masters students,

Luke Atkinson and Samantha Cooling. This season's fieldwork focused on the excavation of two recently discovered cave sites Hatu Sour and Laili and a hilltop settlement Leki Wakik, in the Manatuto District. Luke and Sam are undertaking 6-unit projects on the lithics and geoarchaeology at Hatu Sour. The cave sites produced deep sequences with abundant chert artefacts, bone and marine shell. Occasional obsidian artefacts were found in

both cave sites which should prove useful for comparison with the obsidian artefacts described previously from East Timor (eg. see **Reepmeyer** et al. 2011 *Archaeology in Oceania*). While samples have yet to be submitted for radiocarbon dating the Laili cave may be Pleistocene in age as the sequence shows a change from estuarine shellfish to marine reef species which reflects the change from the Holocene to late Pleistocene shoreline.

Leki Wakik is a very large hilltop site with several large stone walls and circular stone arrangements proposed to be

the remains of house circles. Excavations produced moderately abundant pottery, marine shell and animal bones. Artifact density was highest within the circular stone arrangements as well as inside an unusual area surrounded on three sides by large stone walls. Leki Wakik will contribute to our understanding of fortified sites within East Timor.



View of the hill-top settlement, Liang Huhun near Manatuto, East Timor.

"The arrival of 'Anthony' ... has led to some exciting new projects designed to trial the equipment"

Developments in ANH Labs

A new collaborative project with CSIRO to develop and refine techniques in automated pollen counting is being established at the ANH pollen labs. The arrival of "Anthony" and automated pollen counting stage, microscope and software has led to some exciting new projects designed to trial the equipment and software (for more details

see <http://www.classifynder.com/>).

Geoff Hope, Simon Haberle, Ulli Proske and Ben Keaney attended a seminar on ecological forensics at the Australian Federal Police laboratories in Weston. They heard fascinating applications of ecological interpretation from pollen and fungal spores to a

range of British and murder and rape cases from Pat Wiltshire and David Hawksworth with Australian cases by Lyn Milne. The department has been invited to collaborate with AFP scientific group and to explore the possibility of joint Masters teaching.

East Alligator River Fieldschool

During July, staff and students from ANU undertook a multidisciplinary study for the Urrmarning (Red Lily Lagoon) Rock Art Research Project at Red Lily Lagoon in western Arnhem Land. **Daryl Wesley** and others concentrated on the documentation of rock art sites within a 2km² area adjacent to Red Lily Lagoon on the road to Gunbalanya. In conjunction with the Australian National University Masters of Archaeological Science program, students and staff assisted with the Chaloupka Fellowship archaeological investigation. Manilakarr traditional owners assisted with the rock art survey and an anthropology team, Eva Purvis and Anna Yeo spent time with senior Traditional Owner, Jacob Nayinggul, to document his traditional attachments to the Red Lily Lagoon area. The project undertook surveys of the outcrop previously known by Charles P. Mountford and George Chaloupka as "Inagurdurwildil" and re-located the principle sites that played a significant role in the promotion of Arnhem Land rock art to the rest of the world and assisted in the development of regional stylistic chronologies. **Tristen Jones** worked on aspects of her research into chronologies of mid to late Holocene rock art assemblages. **Noel Tan** assisted with rock art motif documentation



and conducted some conservation assessments including a dust study.

A comprehensive survey located over 100 rock art sites. The field school had the good fortune to have been visited by Jon and Sheila Harman to demonstrate the use of digital photography enhancement revealing rock art images not easily visible to the naked eye. Jon Harman is the developer of D-Stretch, a significant software tool for analysing rock art pigments in digital photography. At this early stage, with the use of D-Stretch, would have to be estimated that this small study area contains in excess of 10,000 rock art paintings in the many site complexes.

Christian Reepmeyer conducted an experimental research program using portable x-ray fluorescence (P-XRF) analysis of chemical elements of rock art pigments and the underlying sandstone. P-XRF study may shed light on the complexity of ochre sources and the chemical weathering issues arising from dissolving mineral elements precipitating from the sandstone (including arsenic!). An interesting discovery arising from the P-XRF was the use of lead as the base of one of the rock art pigments.

Jack Fenner conducted detailed mapping and recording of major rock art sites along the road and ground penetrating radar experiments on sandstone rockshelter deposits. In order to quantify the density of rock art sites in the Red Lily Lagoon precinct, Paul Brugman led a team of students on a GPS survey of the sandstone precinct to locate rock art sites and undertake GPS training.



Traditional owners Gleeson and Hilton Nayinggul.

Sue O'Connor led an excavation of a very significant contact-period occupation shelter that produced a unique record of contact period occupation (apologies to Sue for not finding her a Pleistocene rockshelter).

In addition to the field school, a number of the participants will be undertaking a research projects based on the data from the project during this semester. These research projects will also contribute to a monograph issue on the archaeology of Red Lily Lagoon for *The Beagle*, published by the Museum and Art Gallery of the Northern Territory. Overall the project has been hugely successful in achieving the aims of documenting this specific rock art precinct of Red Lily Lagoon. Results thus far indicate that the shelters, although significantly deteriorated from road and dust impacts, can still provide significant scientific data and therefore warrant action to conserve these sites for future generations of Manilakarr traditional owners.

Daryl would like to thank staff and students for their participation on the Chaloupka Fellowship project. Accommodation was organised by the Office of the Supervising Scientist.

"Apologies to Sue for not finding her a Pleistocene rockshelter."

Judith in China

Following the International Conference on the Topic of Navigation, **Judith Cameron** went on to Hangzhou to analyse spinning tools from the recently excavated site of Tianluoshan. The site has produced evidence for the earliest rice (ca. 7000 BP)

thus far in China. The methodology, developed by **Judith**, enables more precise comparisons to be made between data from different sites.

Tianluoshan excavations — Note the house posts.



Lake George Revisited



Eva Papp, Brad Pillans and Mike Macphail sampling organic facies.

Lake George is one of about five lakes in the world known to preserve a palaeo record for the last 5 million and possibly up to 20 million years. This record has been an on-off focus for ANH and other researchers over the last 30 years. One problem

for palynologists has been the extremely patchy preservation of spore-pollen due to weathering of the lake infill near

the western (highway) margin, including for the LGM when Indigenous communities first used the area for seasonal hunting. In contrast, organic-rich sediments infilling palaeochannels on the eastern (braidplain) side of the lake preserve a much better preserved record that is being explored by **Mike Macphail**, **Geoff Hope**, Brad Pillans, Keith Fifield and Eva Papp.

Recent pollen-analyses confirm that the deeper sediments preserve a detailed record for the

period immediately preceding and potentially during the LGM. The data confirm Gurdip Singh and Elizabeth Geissler's (1981) evidence that regional dryland vegetation was open rather than forested, subject to wildfires, included taxa that are now extinct in the Canberra region, and woody communities were dominated by casuarinas and Chinese-bush. The Indigenous and pre-Indigenous history of the area is the subject of an ARC Discovery application.

Conferences and Workshops



Janet Davidson discussing past survey areas to field trip participants in Samoa.

The 2011 Lapita Pacific Archaeology Conference "Pacific Archaeology: Documenting the Past 50,000 Years to the Present" took place in

Samoa 27th June to 1st July. The department was well represented at the conference. **Stuart Bedford** chaired the Archaeology in Vanuatu session and was involved in a number of collaborative papers. Other participants included:

Wal Abrose "From Oceanic plaited fibres to Lapita ceramic ornamentation"

Stuart Hawkins "Early prehistoric Giant Meiolaniid Land Turtle exploitation in Vanuatu"

Christian Reepmeyer "Standardisation in sourcing studies of obsidian"

Katherine Seikel "Architecture and Socio-Politics on Pohnpei: Current Research and Future Directions"

In July, **Mark Burrows** attended the 11th Australasian Environmental Isotope Conference and 4th Australasian Hydrogeology Research Conference in Cairns. He presented a poster titled "A new late Quaternary palaeohydrological record for the Atherton Tableland, North Queensland, Australia."

Janelle Stevenson, **Michael Fletcher** and **Anthony Barham** all attended the XVIII INQUA Congress in Bern Switzerland from the 21-27 July. The congress attracted over 2,000 Quaternary scientists from across the globe and although titled "A View from the Mountains" these weren't much in evidence during the rather cold and rainy week of the congress. The congress itself was run with exemplary Swiss precision and presented a great overview of current palaeoenvironmental science. A number of sessions were dedicated to climate change over the last 2,000 years, and with a healthy con-

tingent from Australia it proved to be great venue for the Australian Quaternary science community to meet and exchange ideas.

Pollen and human health (immunology and allergy research) was the subject of a one day workshop held at University of Melbourne "Improving knowledge of grass pollen in Australia to help the clinician deal with respiratory allergy." **Simon Haberle** presented results of over 6 years of pollen monitoring research in Darwin, Hobart and Canberra. The ANH lab will continue to develop research interests in aerobiology through a new network of daily pollen monitoring proposed at the meeting.



Bern, Switzerland.

Recent Publications



Processing col marita sauce from red pandanus in New Guinea. Photo by B. Clarke 1960s.

Jean Kennedy's paper 'Agricultural systems in the tropical forest: A critique framed by tree crops of Papua New Guinea' is published online at: <http://dx.doi.org/10.1016/j.quaint.2011.06.020> It includes 3 pictures of red pandanus

(*marita*, *Pandanus conoideus*), taken by Bill Clarke in the 1960s. They show fruit harvest, preparation of sauce (excellent with steamed pork and fern fiddles), and cuttings ready for planting. Sorry, the paper does not include recipes.

Barrows, T.T., M.L. Prentice, G.S. Hope, L.K. Fifield. & S. Tims. 2011. Late Pleistocene glaciation of Mt Giluwe, Papua New Guinea. *Quaternary Science Reviews* doi:10.1016/j.quascirev.2011.05.022

Cameron, J. 2011. New archaeological evidence for the movement of Yueh spinners into mainland Southeast Asia, Taiwan and insular Southeast Asia during the late prehistoric period. In *Proceedings of the International Academic Conference on the Topic of Navigation: Traces of Civilizations*. Shanghai: China Maritime Museum. pp.1-13.

Cameron, J. 2011. The Spindle Whorls. In *The Origins of the Civiliza-*

tion of Angkor, Volume IV: The Excavation of Ban Non Wat; The Neolithic Occupation. (Higham & Kijngam, eds.). Bangkok: Fine Arts Dept.

Hope, G.S., R. Nanson & P. Jones. 2011. *The peat-forming bogs and fens of the Snowy Mountains of New South Wales*. NSW Parks and Wildlife Service Technical Report.

Irwin, G., T.H. Worthy, S. Best, S. Hawkins, J. Carpenter & S. Matara-raba. 2011. Further Investigations at the Naigani Lapita site (VL 21/5), Fiji: Excavation, Radiocarbon Dating and Palaeofaunal Extinction. *Journal of Pacific Archaeology* 2(2): 66-78.

Prentice M.L., G.S. Hope, J.A. Peterson & T.T. Barrows. 2011. The glaciation of the Southeast Asian equatorial region. In *Quaternary Glaciations – Extent and Chronology, Part IV – A closer look*. (Ehlers & Gibbard, eds.). Elsevier: Amsterdam. Pp. 1023- 1036.

ANH Volunteer Archaeology Lab Report

The Anuru Bay ARC Linkage project is continuing the volunteer archaeological laboratories at ANH. Undergraduate students participated in the laboratories. **Daryl Wesley, Katherine Seikel,** and **Tim Maloney** have been involved as laboratory supervisors and have played a very important role in keeping the processing going. Students have been learning stone artefact and faunal remains identification and general sorting and processing of archaeological material. **Jay Chin** has supervised students in analysing a mangrove core sample from Anuru Bay. The laboratory exercise has proven to be very successful and has provided a great forum for interaction between ANH and the undergraduate student body. **Daryl, Tim, Katherine** and **Jay** gave presentations during the semester on various aspects of archaeological, palaeo-environmental and cultural heritage research to the

students. Evidence of Macassan culture contact still proves elusive, but amongst the finds is an Asian glass bead from one of the Indigenous rockshelter deposits. Perseverance is paying off!

Daryl would like to thank the following volunteer students for their time processing the rockshelter and Macassan site excavation materials:

Rhiannon Smith, Jessica Eldridge, Diane Morris, Emma Church, Heidi Veltman, Huan Zheng, Kelsie Long, Kate French, Harrison Pitts, Aleesha Johnson, Jessica Viney, Elle Grono, Brian Li, Bronwyn Heaney, Declan Helby, Leisa Caldwell,

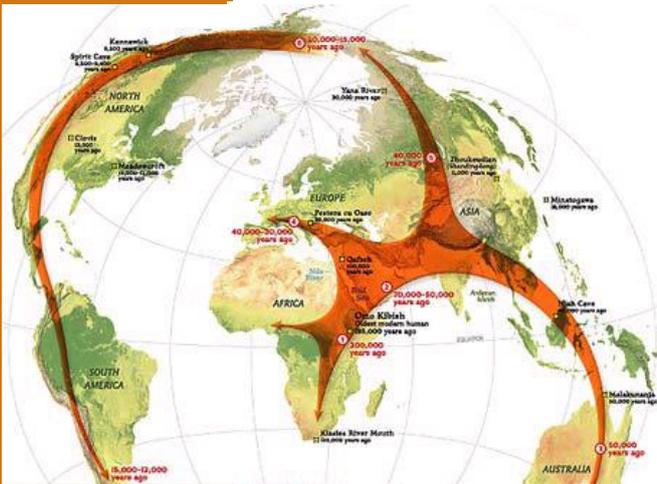
Aaron Melville, Elise Horspool, Charlotte Gardner.
The laboratories continue this semester.

“... amongst the finds is an Asian glass bead...”



Asian Glass Bead.

In Other News: Part 2



Map of human migrations.

Simon Haberle has been invited to present at the International Ocean Drilling Program (IODP) Indian Ocean Workshop in Goa, India 17th-18th October 2011. This will provide the opportunity to engage with a direct future research programs in Indian Ocean research and specifically encourage future marine-terrestrial sediment archive comparisons with implications for the history of monsoon climate and human migration in

the region (<http://www.ncaor.gov.in/iodp/index.html>).

Associate Professor Michael Prentice, Geology Survey Indiana (Indiana University), visited ANH August 2-7. Mike, **Simon Haberle** and **Geoff Hope** have been working on a range of projects concerning climatic responses of high altitude lakes in the Asian Tropics. Mike came to ANU as part of the ANU-IU PanAsia institute to develop a future coring program and plan a workshop on high altitude climate change. He and **Geoff** have mapped the former extent of ice in New Guinea for a book on Quaternary Glaciations that came out at INQUA (see Recent Publications).

After a week in Canberra, **Geoff** and Mike went to Jakarta and Bandung for a further week discussing the new project with Freeport mining and with other sponsors. They also went through results on a 32m deep marine core from Papua with Dr Khoiril Maryumani, which has

been counted for pollen. Khoiril was interested to hear of progress with XRF facilities as his samples at Tongji University could not be run due to breakdowns.

Geoff Hope and Roger Good, prepared a new listing for the Minister for Sustainability, Environment, Water, Population and Climate on *Upland Peat Swamps of the Sydney Sandstone Basin*. The current Temperate Highland Peatlands on Sandstone were split and additional peatlands down to 20m altitude were added.



Stuart Bedford being presented with the Vanuatu General Service Medal by the President of the Republic of Vanuatu, Iolu Johnson Abil in May 2011

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Research in Archaeology and Natural History at the ANU School of Culture, History and Language aims to understand prehistoric human societies, the environments in which they developed and the environmental consequences of human presence. Departmental research ranges from southeast Asia and the Pacific, through the tropical forests of New Guinea and the savannahs of Australia, to the islands of Oceania.

Field research in ANH is supported by well-equipped laboratories that were fully updated and refurbished during 2009. Our laboratories support research into prehistoric textiles, archaeobotanical remains, rock art, prehistoric environments, zoological material and ceramics. ANH houses the largest pollen reference collection in Australia, as well as plant, bone, shell and ceramic collections. We also have access to world-class ANU facilities for archaeological dating, stable isotope analysis, and electron microscopy.

Upcoming Events ...

Morning Teas

6th September: ANH morning tea provided by Jay Chin and Ulli Proske at 10:30 am.

11th October: ANH morning tea provided by Noel Hidalgo-Tan at 10:30 am.

Please sign up for empty time slots in the tea room.

Conferences

21-25 November 2011: Annual Conference of the Ecological Society of Australia, Hobart, Tasmania

28 November-2 December 2011: 2nd Joint International Conference of IGCP 588 and INQUA 1001, Bangkok, Thailand

1-3 December 2011: AAA Conference, Toowoomba, Queensland

31 January-3 February 2012: The Australian Meteorological and Oceanographic Society Annual Conference, U NSW, Sydney

13-17 February 2012: The Australasian Quaternary Association Biennial Conference, New Zealand

18-22 April 2012: SAA Conference, Memphis, Tennessee