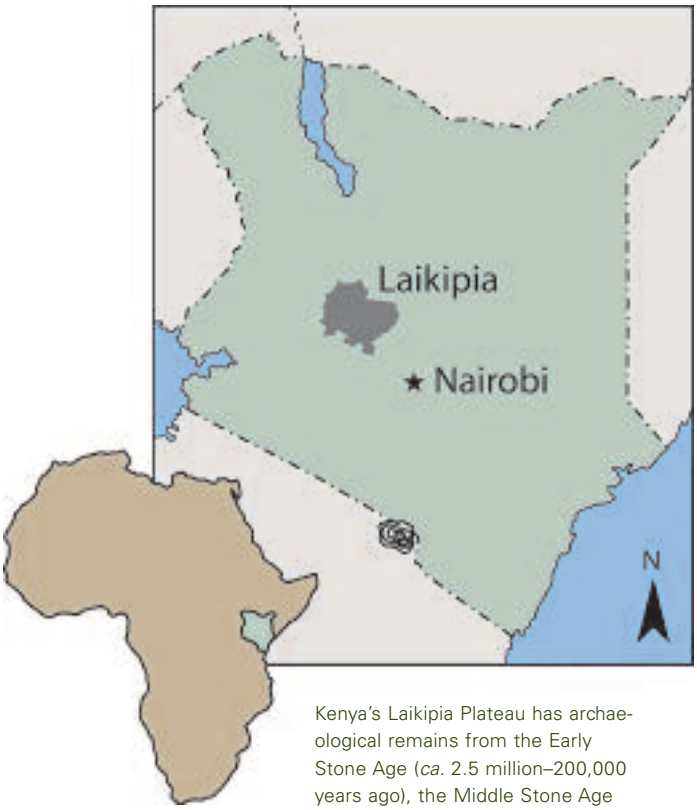
The Origins of Pastoralism in Eastern Africa

ARCHAEOLOGICAL EXPLORATION ON THE LAIKIPIA PLATEAU, KENYA

BY KATHLEEN RYAN AND KAREGA-MÜNENE

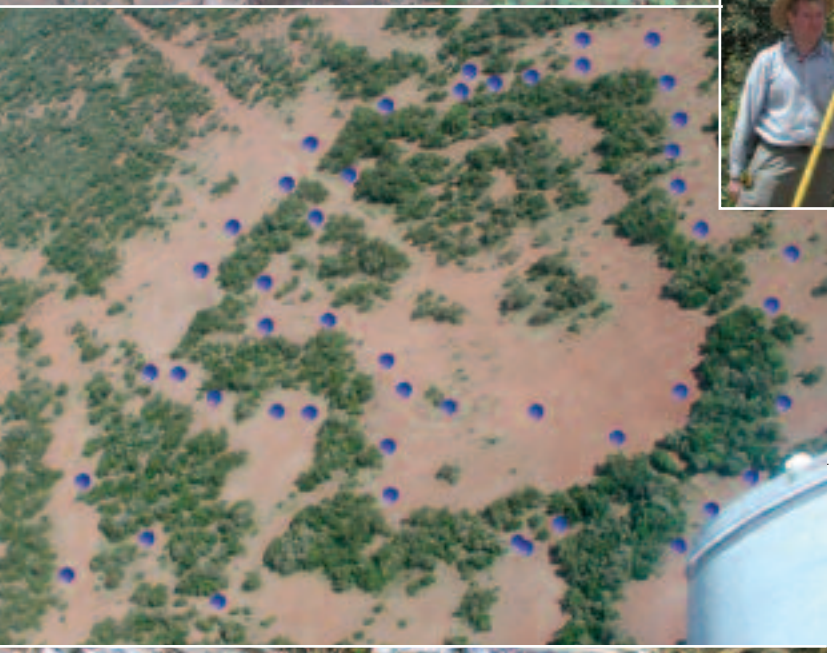
HOW DO CATTLE herders such as the pastoral Maasai of East Africa, manage to survive and often prosper in harsh and unpredictable environments? Can their survival strategies provide analogies for prehistoric pastoralists who lived in similar environments? These questions were posed by one of us, Kathleen Ryan, in 1990, during her first ethnoarchaeological study in Maasailand, where she interviewed the Maasai about their methods of herd and range management. She examined Maasai behaviors that affected the composition of cattle herds and the pattern of animal disposal. Combining this information with climatic considerations and an understanding of how these behaviors would form archaeological sites, she developed analogies that could help us understand how humans and animals interacted in the past. The next logical step is to evaluate these analogies against evidence recovered at archaeological sites.

In 2002, the second author, Karega-Münene, invited Ryan to join him and other archaeologists from the Archaeology Division of the National Museums of Kenya in archaeological explorations of the Laikipia Nature Conservancy—a 100,000 acre nature preserve in western Laikipia District. Formerly the territory of the Maasai, until the British moved them south at the beginning of the 20th century, the Laikipia Nature Conservancy is an area rich in archaeological remains ranging from the Middle Stone Age up to the present.



Kenya's Laikipia Plateau has archaeological remains from the Early Stone Age (*ca.* 2.5 million–200,000 years ago), the Middle Stone Age (200,000–50,000 BP), the Later Stone Age (50,000 BP–2500 BC), the Pastoral Neolithic (2500–500 BC), and the Iron Age (500 BC to the present).

Lindsay Shafer



We visited the area briefly in February 2002, and a field-walking survey by a team of archaeologists from the National Museums began that March. Test excavations at two sites—Jangili Cave and an open-air site at Popong'i—produced pottery and stone artifacts preliminarily dated to the Later Stone Age and the Pastoral Neolithic. Based on surface artifacts other open-air sites in the immediate vicinity were dated to the Middle Stone Age and the Iron Age.

In September 2002, together with a team of archaeologists from the National Museums of Kenya and Bill Fitts and Lindsay Shafer of Penn's Museum Applied Science Center for Archaeology (MASCA), the authors began surveying and mapping Popong'i and another large open-air settlement at Ndume. In 2003, test excavations on three house mounds within the Popong'i and Ndume complexes produced lithics and pottery dating to the Later Stone Age, the Pastoral Neolithic, and later. We found animal bone remains, including domestic stock, at all three.

In January and May 2005 the team spread eastward across Laikipia District and recorded seven more rock shelters at Mpala Ranch, one at Ol Jogi Ranch, and one at Lewa Wildlife Conservancy. These sites are all preliminarily dated to the transition from the Later Stone Age to the Pastoral Neolithic. We also found open-air settlements dating to the Pastoral Neolithic, as well as historic period Maasai settlements, at Mpala and Lewa.

Clearly, Laikipia is an ideal location to evaluate the analogies generated by Ryan's ethnoarchaeological research. Its archaeological sites date to the Later Stone Age, before pastoral farming (the herding of domesticated animals) replaced hunting and gathering. Its transitional sites straddle the shift from hunting and gathering to pastoral farming, and it has fully developed Pastoral Neolithic sites, as well as Iron Age and historic period Maasai settlements.

The transition to herding came relatively late to eastern Africa (*ca.* 5,000 years ago). Unlike many other areas of the world, however, domesticated animals appear to have preceded domesticated plants in the area. When and how this new pastoral subsistence system took hold has been the sub-

Top, Karega-Münene (second from left) and MASCA's Lindsay Shafer (second from right) in Jangili Cave. Middle, aerial view of Ndume, a large open-air settlement dating to the Later Stone Age/Pastoral Neolithic. The blue spheres mark house locations found during the GPS survey. Inset, MASCA's Bill Fitts surveying an Iron Age complex at Laikipia Nature Conservancy. Bottom, Kathleen Ryan (center) with Kenyan team members Mulu Muia and Simon Katisiya collecting soil samples from Prungai rock shelter at Mpala Ranch.

Bill Fitts (top), Lindsay Shafer (middle and bottom), Kathleen Ryan (inset)

ject of debate for decades and is the main focus of our research in Laikipia. To provide answers we must first identify domesticated cattle in the archaeological record. Second we must determine if these cattle were being managed, as the Maasai do today, primarily for dairy production. Maasai slaughter steers at around 4 years of age, bulls are usually retired from duty by the age of 10, then slaughtered, while females are kept in the herd as long as they remain relatively productive, 15 to 20 years old. If these kill-off patterns are apparent in our faunal assemblages then we are indeed looking at a management "system" analogous to Maasai practice today.

To complement our faunal data, we have entered into a collaboration with Professor Richard Evershed's Biogeochemistry Laboratory at Bristol University (England) to extract and analyze possible lipid residues on our prehistoric pottery in order to detect milk fats. If milk fats are found, and in sufficient quantities for radiocarbon dating, we will be able to directly date the use of milk products and thus the first use of a pastoral mode of production on the Laikipia Plateau. Stay tuned.

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For Further Reading

Dudd, S. N., and R. P. Evershed. "Direct Demonstration of Milk as an Element of Archaeological Economies." *Science* 282-5393 (1998): 1478-81.

Ryan, K., Karega-Münene, S. M. Kahinju, and P. N. Kunoni. "Ethnographic Perspectives on Cattle Management in Semi-arid Environments: A Case Study from Maasailand." In *The Origins and Development of African Livestock: Archaeology, Genetics, Linguistics and Ethnography*, edited by R. M. Blench and K. C. MacDonald, pp. 463-77. London: UCL Press, 2000.

Lindsay Shafer

Cupules of indeterminate date found at Lewa Wildlife Conservancy, in close proximity to Early Stone Age (Acheulian) hand axe deposits and within sight of an abandoned Maasai settlement. Examples of shallow cupules such as those depicted here have been linked to the Early Stone Age in East Africa, while the deeply grooved cupules in the center appear to have been used in a board game popular with the pastoral peoples of the area.