



GOING FULL CIRCLE ON KHOEKHOE ORIGINS

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In November 2006, Karim Sadr, head of the School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand, and Francois-Xavier Fauvelle-Aymar, senior research fellow in African History and Archaeology at TRACES (CNRS), University of Toulouse, France, hosted a four-day workshop at a wine estate in Paarl for over a dozen experts to discuss the Khoekhoe and the arrival of pastoralism in the Cape. The delegates' expertise leaned heavily toward archaeology and linguistics, but ethnology was also represented, as was genetics and physical anthropology. The object of this gathering was to summarise the state of knowledge and current debate about the nature of pastoralism and the process of its introduction to southern Africa (Sadr & Fauvelle-Aymar 2008).

A form of consensus was reached at the end of the four days that really did represent the state of knowledge as it stood in the last months of 2006. Although there had been much debate and disagreement, everyone accepted that the living Khoekhoe such as the Nama represented the descendants of native Kalahari peoples who had adopted pastoralism from migrants originally from further north and east. The model suggested a diffusion of ideas rather than people.

Some time around 2000 years ago, pastoralists bringing domestic stock had entered the margins of the northern Kalahari where they met at least one group of foragers who spoke a proto-Khoe-Kwadi language. Some of these people made the psychological and socio-economic leap required to transform from foragers to herders, and their descendants spread south from the Kalahari in the form of the historic Khoe-speaking ethnic groups that we know as the Khoekhoe. Their neighbours did not subscribe to the new economic regime and their descendants remained in the central Kalahari as 'Bushman' groups speaking Khoe-Kwadi (or Central San) languages. Key to this consensus was the idea that San and Khoe peoples, although they are divided linguistically and economically, are all the descendants of one common pool of Khoesan people whose roots went deep into southern African prehistory.

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An early 18th century illustration of a Khoekhoe family travelling with their domestic stock (from Smith & Pheiffer 1992)

The 2006 consensus ended a long debate going back over a century among linguists, archaeologists and physical anthropologists. It had started with a very different model in which the Khoekhoe were seen as foreign invaders who had moved down from the Middle East. Early historical reports of Semitic-like elements in Cape Hottentot languages, the presence of fat-tailed sheep in the flocks of the Khoekhoe and

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other cultural attributes suggested a North African or even Arabian origin for the living Khoekhoe. This 'Hamitic Hypothesis' was strengthened by the physical anthropology reports of the German anthropologist Felix von Luschan who had linked the physical features of the Khoekhoe with ancient Egypt. The model was perhaps best described by Schapera, who said that the Hottentots 'sprung out of a mixture of the old Bushman population of East Africa with an early immigration there of Hamites, who gave them their cattle and those peculiarities of language by which they are distinguished from the modern Bushman' (Schapera 1930: 43).



Felix von Luschan, director of the Museum für Volkerkunde in Berlin, was a major proponent of the 'Hamitic Hypothesis' and argued that the living Hottentots of South Africa have strong anatomical links to the people of Egypt

But not everyone in these early years bought into the 'Hamitic Hypothesis'. At nearly the same time that von Luschan was publishing his model, Louis Peringuey at the South African Museum in Cape Town had begun to gather skeletons from a range of archaeological sites in the Cape Province. His large collection suggested an alternative model of Khoekhoe origins. Peringuey promoted the idea that 'Bushmen (the hunter-gatherers), Hottentots (the pastoralists) and Strandlopers (people who gathered sea food on the coast)' were all Khoesan and that there was no Hamitic influence. His proposed model considered the origin of the Khoekhoe as the result of mixing with local Bantu-speaking people who arrived in the region as part of the Bantu Expansion.

The two competing theories sat side by side through the 1940s and into the 1950s. The tide began to turn in the 1960s as the approach to physical anthropology changed from the study of racial types to the study of dynamic populations. Although researchers remained interested in the differences between people, the focus shifted to the processes of change rather than the 'description' of variation. Rigid racial definitions of ethnic groups started to fall away. It was recognised that populations overlapped in physical features and that distinctive features could be explained in terms of adaptation and gene flow rather than discrete ancestry. Studies that could explore this new approach required an understanding of genetics rather than anatomical features and the research agenda was

filled by the study of differences in the proteins of the blood – something that is controlled very tightly by genetics.

Perhaps the most important paper indicating the shift in vision away from the Khoekhoe's Hamitic racial characteristics was the 1963 work by Singer and Weiner. Originally presented at a symposium on the biology of modern populations in Chicago in 1962, the paper is a brief summary of the biological differences and similarities between 'Bushmen', 'Hottentots' and 'Bantu'. A special focus was on the origin of the Khoekhoe and the authors dealt in particular with the set of serogenetic (blood genetics) data that was still new at the time. In particular, the authors rejected a non-African origin for the Khoekhoe and suggested that it was not necessary to look beyond the African context to understand the biological history of the region. Writing in 1978, Singer accepted the differences between Khoekhoe and San as '...what one expects in populations that derive from common ancestral stocks and that, after periods of separation and isolation, come together at various times to remingle their genes' (Singer 1978: 119).

The 2006 consensus was more or less a version of this line of thought, which had been developing for several decades. Although there was substantial argument about which group was responsible for bringing pastoralism from East Africa to the Kalahari, the consensus agreed that it was NOT some form of foreign Hamites. The model was one of cultural diffusion in which pastoralism was independent of the biology of the people who practised it. The model talked about a 'bow wave' in which Bantu or Nilotic pastoralists penetrated the central regions of Africa. In the process they pushed the aboriginals ahead of them, some of whom were transformed into pastoralists themselves as they learned to keep domestic stock. 'Foreign' genetic elements in the Khoekhoe were seen as a result of gene flow from neighbouring Bantu-speaking groups either on the margins of the Kalahari or in more recent times in South Africa and Namibia. There was plenty of historical evidence of this intermixing: between the Nama and the Dama in Namibia; between the !Ora and the Tswana along the Orange River; and between the Gona and the Xhosa in the Eastern Cape.

But changes in the model were occurring even as the papers from the 2006 conference were being edited for publication. Research on blood types was giving way to the new field of DNA sequence comparison. The first of these papers, published in 1987, suggested that the genetic root of all modern humanity was in Africa. This research was done on mitochondrial DNA and tracked lineage down the female ancestral line. Researchers began to talk about an 'African Eve' who lived either in East or South Africa some 150 000 years ago. The San now became the central focus of genetic studies in the search for these roots.

The Khoekhoe were not at first the central topic of these papers. Far more importance was placed on the relationship between the East African click-speaking Hadza and Sandwe, and the South African Khoesan. Linguists had clumped all these people into a single Khoesan language family, but as early as 2003 genetic evidence suggested that the last time the two regional groups had shared an ancestor was over 80 000 years ago. A more recent study has downgraded the separation to 58 000 years, but this is still far back in time. Physical anthropologists had previously noted that the two groups had little in common morphologically and it was only the tenuous link of clicks in their languages that held them together in terms of classification.

All of these studies were based on recording the variations in mitochondrial DNA (the female line) and Y-chromosome DNA (the male line). The genetic differences were valid, but only one lineage for each sex was tracked and the picture of the relationships between populations was not entirely clear. The key to understanding these relationships would be found by studying the San of the greater Kalahari region rather than their distant relatives in Tanzania.

The foragers of the Kalahari speak a cluster of languages that can be divided into three distinct language families: northern (Tuu), central (Khoe-Kwadi) and southern (Kx'a). It is the central group that interests us because it contains both the Nama Khoe-khoe language and several other similar Khoe-Kwadi languages spoken by hunter-gatherers in the central Kalahari. Our assumption was that the people speaking these languages represented the cousins of the Nama who had not become pastoralists. Then a group of geneticists published something very strange about the Y chromosomes in a group of Khoe-Kwadi speakers that had not been studied before. Henn et al (2008) found a rare Y-chromosome variant in the Khoe-Kwadi that was common in East Africa, but not amongst Bantu-speakers. The researchers suggested that this was evidence of the movement of a small number of men from a Nilotic-speaking group into the San around 2 000 years ago. Here was 'smoking gun' evidence of the migratory event that must have been responsible for bringing sheep and cattle to the Cape.

What was needed was a really thorough summary of all of the genetic data on the Khoesan, and this has recently been provided by the South African geneticists Carina Schlebusch and Himla Soodyall. In two papers in 2012 and 2013 based on Schlebusch's PhD work, they drew in all the genetic evidence not just for lineage tracking but also for a large number of nuclear genes that are ignored in mitochondrial and Y-chromosome studies. They reviewed all the lineage data and showed conclusively that the northern San people were very different from their central and southern neighbours. The large number of gene mutations they found in the nuclear genome sug-

gested that the separation had occurred somewhere between 25 000 and 43 000 years ago. The people who spoke the central and southern San language clusters were more similar to each other and the Nama sample fitted nicely into the genetic range of the other central San speakers, but there were some differences. Not only was there substantial evidence of gene flow from Bantu-speakers, but there were hints of something else in the genetics of the Nama.

Estimates of the proportion of west Eurasian ancestry in southern African populations according to language families (adapted from Pickrell, 2014)

Ethnic group	Language family	% Eurasian ancestry
Nama	Khoe-Kwadi	14,0
Shua	Khoe-Kwadi	5,4
Haikom	Khoe-Kwadi	5,2
Khwe	Khoe-Kwadi	4,0
Tshwa	Khoe-Kwadi	3,0
Naro	Khoe-Kwadi	2,2
Gjui	Khoe-Kwadi	2,0
Taa	Northern San	1,9
Gkana	Khoe-Kwadi	1,6
!Xuun	Southern San	1,2
!Hoan	Southern San	1,5
Damara	Khoe-Kwadi	1,3
Kgalagadi	Bantu	1,1
Juj'hoan	Southern San	1,0
Taa	Southern San	0,4
Himba	Bantu	0,1
Tswana	Bantu	0,0
Wambo	Bantu	0,0

Up to this point the new genetic data could still be used to support the 2006 consensus. There was something weird happening in the genes of the Khoe-khoe, but it could theoretically still be explained by gene flow from a few rare males of East African origin. Perhaps the arrival of pastoralism was not entirely cultural. But then about three months ago a new genetics paper dropped a bombshell. Pickrell (2014) and his team published a paper entitled 'Ancient west Eurasian ancestry in southern and eastern Africa'. Like Schlebusch and Soodyall, they had looked in detail at the genes in the nucleus of the cell and catalogued over 500 000 possible variations, but they had also used a different system of analysis which enabled them to see an admixture between populations very clearly. The new method identified 14 per cent of genes in the Nama to be of Eurasian origin (see table). This in itself was no surprise as we know that the Nama have absorbed many newcomers in the last 200 years or so, but the data from Pickrell indicates that a substantial portion of these non-African genes had entered the Nama genome somewhere around 1 800 years ago (give or take a century or two).



Another early 18th century illustration showing the Khoekhoe milking technique of blowing into the vagina to trigger milk flow. This is a technique found amongst other African pastoralists, including the Nuer and the Fulani (from Smith & Pfeiffer 1992).

Admixture from Eurasia also appeared in the neighbouring central San Khoe-Kwadi speakers at the same time, which indicates that there was no mistake in the analysis. But even more important was that the pattern of Eurasian admixture was also found in the highlands of Ethiopia. It was possible to date the Ethiopian admixture by calculating back how many generations had passed since the genes first entered the East African samples. The genes reached Ethiopia between 500 and 1 000 years earlier than they reached the Kalahari. Pickrell and his team were specific: 'We conclude that the West Eurasian ancestry in southern Africa was likely brought by a migration of an already admixed population from Eastern Africa'. They speculated that the ultimate source of the genes was from people speaking an Ethiosemitic language that could be South Arabian in origin.

The paper by Pickrell has confirmed the genetic hints about non-Bantu-speaking foreigners entering the Kalahari bringing pastoralism, and has indicated a possible migration all the way from Arabia to the mountains of the Cape. This is suspiciously close to the old 19th century idea of an Hamitic origin for the Hottentots. This new research, only published a few months ago, has finally broken the 2006 consensus and has, in a sense, brought us full circle back to ideas originally suggested in the 1890s. We have always known that the introduction of cattle and sheep to Africa from the Middle East was a long process going back at least 6 000 years, but thanks to genetics we now have evidence of a specific migration event that entered Eastern Africa around 2 500 to 3 000 years ago and then continued on to reach Southern Africa somewhere around 2 000 years ago.

We know they intermixed with the native peoples of East and South Africa, but not what their relationship to them was. Did they merge with the native peoples, or was this a case of only men entering the region and taking local brides as they travelled? Did they enter South Africa as a separate cultural entity or had they already fused with the African natives before they

arrived here? So many questions and so few answers, but there is a new phase of genetic research that could answer these unknowns. At least four separate projects have been launched in the last few months to tackle the technically difficult analysis of ancient DNA. Ours is not an ideal climate for ancient DNA work. The cold of the high Asian and European latitudes preserves DNA better, but the prize in southern Africa is worth the effort. If we can tease DNA sequences out of the ancient bone and teeth, then we will be in a perfect position to ask about the ancestors of our living people.

References

- Henn, BM, Gignoux, C, Lin, AA, Oefner, PJ, Shen, P, Scozzari, R, Cruciani, F, Tishkoff, SA, Mountain, JL & Underhill, PA. 2008. Y-chromosomal evidence of a pastoralist migration through Tanzania to southern Africa. *Proc. Natl Acad. Sci. USA* 105(31): 10 693–10 698.
- Pickrell, JK, Patterson, N, Loh, P-R, Lipson, M, Berger, B, Stoneking, M, Pakendorf, B & Reich, D. 2014. Ancient west Eurasian ancestry in southern and eastern Africa. *PNAS* 10, 1073.
- Sadr, K & Fauvelle-Aymar, F-X (eds). 2008. Khoekhoe and the origins of herding in southern Africa. *Southern African Humanities* 20(1): 1–248
- Schapera, I. 1930. *The Khoisan Peoples of South Africa*. London: Routledge.
- Schlebusch, C, Lombard, M & Soodyall, H. 2013. MtDNA control region variation affirms diversity and deep sub-structure in populations from southern Africa. *BioMed Central Evolutionary Biology* 13: 56–76.
- Schlebusch, CM, Skoglund, P, Sjödin, P, Gattepaille, LM, Hernandez, D, Jay, F, Li, S, De Jongh, M, Singleton, A, Blum, MG et al. 2012. Genomic variation in seven kho-San groups reveals adaptation and complex African history. *Science*, 338(6105): 374–379.
- Singer, R. 1978. The biology of the San. In: Tobias, PV (ed.), *The Bushmen*. Cape Town: Human & Rousseau. 115–129.
- Singer, R & Weiner, JS. 1963. Biological aspects of some indigenous African populations. *Southwestern Journal of Anthropology* 19: 168–176.
- Smith, AB & Pfeiffer, RH. 1993. *The Khoikhoi at the Cape of Good Hope: 17th century drawings in the South African Library*. Cape Town.
- Von Luschan, F. (1907) *The racial affinities of the Hottentots*. London: British South African Association. →