Chapter 20

Trackers' Consensual Talk: Precise Data for Archaeology

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Abstract This paper is based on ethnographic research with Jul'hoan San in Botswana starting in 1970 and on translation and transcription work with Jul'hoan San trackers from Namibia who travelled to the Caves du Volp in the French Pyrenees in 2013 to do archaeological work. The Tracking in Caves project, headed by German archaeologists Andreas Pastoors and Tilman Lenssen-Erz, was investigating fossilized human footprints in the caves dating back to around 17,000 calBP. The paper discusses three main verbal formats that can provide useful information to the archaeology of tracking: (1) narrative in the form of folktales and other oral forms referring to animal behaviour, (2) talk in the form of accounts of actual hunts, and (3) consensual discussion in the form of deliberations among trackers as they seek to gain many types of information from tracks. The paper outlines how the trackers and the archaeologists, after an initial period of misunderstanding and miscommunication, mutually learned from each other and eventually bonded on the basis of the scientific method. It does so by drawing on evidence from narrative, talk, and consensual discussion. By investigating verbal data provided by People's Science, the Tracking in Caves project shows us that skill in tracking, using the tools of egalitarian communication and based on extensive environmental knowledge, has been an enabling feature of the long human story.

Keywords San · Kalahari · Hunter-gatherers · Tracking · People's Science · Narrative · Consensus

Introduction: Tracking and Talking

We should not speak of what we have been told, but only of what we ourselves see... What we don't see well, we can't speak of: only the things we see well. (Tsamkxao!Ai!ae [Tsamgao Ciqae], Pech Merle Cave, France, July 2013)

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In writing the introduction to this paper, I saw that it was best told as a story. I wanted it to graphically illustrate the power of narrative to bring alive a tale of learning and discovery. Thus I follow a roughly chronological path in telling how I learned what I have learned about the science of tracking and its importance for archaeology and other social sciences. Woven into the story are insights gained along the way from the study of the oral folklore, mythology, and social ideologies of hunting and gathering peoples.

In 1971 I was in the midst of fieldwork with the Jul'hoan San of Ngamiland, Botswana (Fig. 20.1). At that time those Jul'hoansi were obtaining much more of their subsistence from hunting and gathering than they are, due to land appropriation and other changes, today. I was learning their language, studying their folklore and religion, and observing how the environmental information necessary to their survival was codified, stored, and shared. I was particularly interested in the relationships between western science and what anthropologists later came to call People's Science, including tracking.

After my fellow graduate students in the Harvard Kalahari Research Group left our long-established camp at Dobe, Botswana, I set up my own camp at Kauri, nearer to the towns of Tsau and Maun. There were several groups of Jul'hoansi living at Kauri, some of them working for Tswana cattle-herders. But much of their food still came from hunting and gathering, like that of the people at Dobe. I had brought with me several Jul'hoan assistants from Dobe and was now on my own with no one to speak English to – a good formula for hastening language acquisition.

After a few months at Kauri, we needed to make a trip back to Dobe. We were intending to deliver Di//xao, my assistant = Oma!Oma's wife, and their toddler, to her people. Di//xao had become too homesick to stay at Kauri, but = Oma!Oma said he would continue to work for me. So we drove our Land Rover to one of the villages near Dobe where Di//xao's family had been living several months before. We learned that her people were not currently in residence and that they were living even further north, near Cherocheroha, in the direction of the mongongo groves, gathering the wild fruits and vegetables of that abundant 1971 rainy season and hunting.

I was quite taken aback. How would we find them? There were no roads – not even tracks – through the heavy sands of !Xu, the region of transverse dunes between Dobe and the groves. We were carrying a drum of petrol lashed snugly behind the back seat, and its contents were measured to suffice for only the kilometre distance we had planned to travel, with very little for contingencies. A stick poked down through the drum cap revealed only 6 inches of petrol left – and we still had many heavy sand kilometres to drive back from Dobe to Tsau, which had the nearest petrol pump. Yet we couldn't ask a young woman alone, carrying a small child, to make a dangerous walk like the one between Dobe and Cherocheroha, nor did the village people know when her family would return to the Dobe area. So the next morning, we began bush-crashing the Land Rover northwards. I was in utter trepidation, worrying about, among other things, running out of fuel and potentially losing precious weeks of assembling the materials for my dissertation. But as everyone

Fig. 20.1 Map of Dobe and Nyae Nyae areas in the northwestern Kalahari Region of Botswana and Namibia (Biesele and Hitchcock 2011)

else seemed relaxed and cheery, I decided I would just have to trust in their confidence.

After hours of banging into stumps, though, falling into aardvark holes, and cutting our truck out of thorn bushes, the afternoon sun began to wane, and we had not found Di//xao's family. I began to feel quite desperate. Every thicket, every clearing, started to look the same to me, and I worried that we might be going around in circles. My hands on the steering wheel were so hot I thought they might actually

be getting burned. I was so weary and anxious that I felt we should go no further. “Stop!” said Di//xao suddenly. Gratefully, I stopped the Land Rover. She was sitting behind me on the back seat and pointing out her window. “Mba!u,” she murmured, “there’s my father’s footprint.”

In minutes we had located the people we were looking for. I was marvelling, but glad as they were to be suddenly reunited; everyone else concerned treated the whole episode quite routinely. The contrast between my amazement and their matter-of-fact certainty that the people would be found, using a combination of tracks known to all with geographic and social information about their likely whereabouts, could not have been starker. It whetted my appetite for learning about tracking knowledge: not a magical skill but an element of People’s Science on which Jul’hoansi and their ancestors had clearly relied for millennia.

This experience was one of many pivotal moments leading to my eventual focus (in my dissertation and indeed in the rest of my life) not only on tracking but on the knowledge and communication systems – in general – of the Jul’hoansi and other hunter-gatherers. I was thoroughly galvanized by the idea that there were close relationships between the ways information was communicated and remembered (including the stories I was recording that were rife with information about how animals behave and how humans ought to behave) and the people’s achievement of daily subsistence.

From the start of my graduate work in anthropology, I have been interested in the communication systems of hunter-gatherers. One of the first things I wrote after my initial fieldwork was a paper for the first CHAGS (Conference on Hunting and Gathering Societies) held in Paris in 1978 (Bieseke 1978). Called *sapience* and scarce resources, it suggested the importance of studying sapiential paradigms of hunter-gatherer societies, defined as:

1. The repertoire of dominant images, image relationships, symbols, and metaphors used as constitutive elements in the prevailing world view of a society
2. The array of structures of description, inference, and persuasion used by a society to make decisions, solve problems, and generate consensus

I drew attention to what some at that time regarded as hunter-gatherers’ *recondite* systems of thought as actually embodying an essential and generalizable practicality. I referred to the famous 1976 paper of Blurton Jones and Konner “!Kung Knowledge of Animal Behaviour” (or, “The proper study of mankind is animals”) as laying the groundwork for the understanding that !Kung (Jul’hoan) *ethnoscience* is in essence no different from western science. It has good predictive capacity for their subsistence situation and reflects a probabilistic view of the universe we would do well to understand and make available for comparative study in other hunter-gatherer societies.

Making the data of *ethnoscience* available demands, of course, not only precise understanding of language but a significant number of examples of its actual use. With regard to understanding the science of Jul’hoan tracking, one can identify at least three spoken formats providing relevant verbal data. In ascending order of precision, it seems to me, these three are:

1. Folktales and other traditional oral forms dealing with animal behaviour
2. Accounts of actual hunts told by the hunter or hunters who were present
3. Spoken deliberations among trackers as they cooperatively assess tracks to determine which ones to follow as well as how to follow them

I started my fieldwork at the first level, recording many versions of the same story so as to make them available for the information they contained regarding, among other things, animal behaviour. This animal behaviour information is embedded in traditional stories in a way that is inseparable from not only environmental but also social and moral information (see Bieseke 2009).

Later I became aware of the immense language richness in the accounts of actual hunts, the format I am calling my second level. Sometimes these accounts are told in tandem by two speakers in a form called by the Jul'hoansi *hante*. One or both of the speakers would typically be actually present on the hunt. *Hante* is a dramatic and exciting, call-and-response, and/or repetitive type of narration that clearly enhances memorability.

John Marshall made a number of films of hunting stories told by the late = Oma Tsamkxao, the grandfather of Tsamkxao/Ai!ae who is part of the Tracking in Caves project (Cologne). During the 1980s I had the privilege of translating the Jul'hoan parts of some of John Marshall's soundtracks into English.¹

The third level format of spoken tracking information I identified, routine consultations made by trackers with each other while following spoor, required a level of athleticism that was beyond me even back in the 1970s. But in 1995 a happy accident of fate brought me into a tracking situation I could handle. Some months after breaking my ankle during a scholarly visit to Japan, I was scheduled for fieldwork in Nyae Nyae, Namibia, just across the border from Dobe, Botswana. I was to be accompanied by my late husband Steve Barclay, a former hunter knowledgeable about tracking in South Texas, who planned to make a study of Jul'hoan tracking (Bieseke and Barclay 2001). There, Dillxao = Oma came along with her late husband N!ani to walk back to camp with me should my newly healed ankle give out. Dillxao's presence gave us the chance to discover that Jul'hoan women as well as men often have advanced tracking skills and that they sometimes use well-honed communication patterns long established with their husbands to participate closely in tracking animals. I presented these findings at the CHAGS conference in Osaka, Japan: Louis Liebenberg was there too, and I had the chance to learn more about his work with the CyberTracker system.

In another rich experience that took place on my level 3, in 2013 I had the chance to participate in the Tracking in Caves project with my Kalahari colleagues as well as a team of French and German archaeologists, the latter the same ones (Pastoors and

¹Many of these hunting story films can be seen in South Africa at !Kha ttu San Educational and Cultural Centre, at its newly opened Heritage Centre, which has begun building an archive of San materials. Marshall's films have also been deposited at the Smithsonian Institution in Washington, D.C. These films are a rich resource on tracking skills and knowledge of animal behaviour. I hope it may someday be possible, through the Smithsonian's Recovering Voices Program, for the Jul'hoan Transcription Group to transcribe and translate spoken materials from these hunting story films.

Lenssen-Erz) who have organized the Tracking Conference and this publication from it. The language data made possible by the setting and the technology then available seemed to me to be at the pinnacle of possible precision for outsiders like myself to begin to understand Jul'hoan tracking science.

Trackers' Knowledge as Precise Data for Archaeology

Indigenous trackers routinely consult with each other while hunting: they sift and share evidence until consensus is reached. The three Jul'hoan San trackers who are still with the Tracking in Caves project today, Tsamkxao /Ai!ae, !Ui /Kunta, and /Ui G/aq'o, have been part of it since before it started in southwestern France in 2013. Joining them there as anthropological consultant/auxiliary translator, I facilitated collaboration between the Jul'hoan trackers and the French and German scientists in reading human tracks in four painted caves. Native language translation was provided by one of the trackers, Tsamkxao, as the three deliberated on evidence left 17,000 years ago by human feet.

Professional sound film was made of each verbal interaction. A most exciting aspect of the collaboration was this: lengthy conversations among the trackers were precisely time-coded to relevant visual signs of human presence within the caves. This produced a twinning of two rich sources of data in one medium.

Sound from the film can now be transcribed and translated for minute analysis of action verbs, body postures, and physical characteristics of trackmakers at each site. This work has been started by the Jul'hoan Transcription Group (JTG) in Namibia mentioned above, a long-term community-based project using ELAN transcription software (Fig. 20.2).

The JTG as an organization is committed to creative preservation of Jul'hoan language-based skills, knowledge, and social understanding. The JTG project makes it possible to use the social sharing of Jul'hoan men's (and women's) tracking knowledge to explore a precise new tool for the enrichment of archaeological data.

Fig. 20.2 Transcribers Charlie !Ui and Fridrik !Ai!ae, Tsumkwe 2007. (Photo R. B. Lee, for Kalahari Peoples Fund)

It also suggests a rich new dimension of collaboration between archaeology and anthropology: just for starters, understanding the social sharing of knowledge illuminates the relationships among people and how they share both resources and power.

Because elsewhere the background and new results of the Tracking in Caves projects are reported (see Lenssen-Erz and Pastoors, Chap. 6, and Pastoors et al. Chap. 13), I focus here only on outcomes of the particular roles I found myself playing in the project, those of supplementary translator, facilitator, and, as it turned out, temporary ethnographer of the project itself.

Tracking the Tracking in Caves Project

I start with the first few days of Tracking in Caves project (2013), which were spent in the Parc de la Préhistoire near Tarascon, France, and in the Niaux Cave. The experiences and communications of those days were critical to the eventual establishment of a good collaboration among archaeologists, trackers, and filmmakers. They were also the days on which the most dramatic realizations were made by each of the parties regarding what it would take to forge a meaningful collaboration. As in the introduction to this paper, I find it effective to present a narrative account of these critical experiences.

Lesson 1

The Parc de la Préhistoire was chosen for our orientation. This gem of French archaeology and tourism provides a stunning introduction to the caves, the paintings, and the methods and technologies once used by prehistoric hunter-gatherers of southern France. In the park building, we focused especially on the reconstructed subterranean mud hill known as Réseau Clastres. The hard-to-access Réseau features a bewildering array of dozens of fossilized human tracks and appears to have been frequently used as a pathway area for people travelling through the vast cave system. The archaeologists hoped that by looking at a reconstruction of the Réseau that is easy to view, the Jul'hoan trackers could shed light on how many sets of tracks were present and perhaps on the sexes and ages of those who made them 10,000 years ago.

In a dark hall in the park building, the Réseau model runs adjacent to a smooth walkway, with a metal barrier between visitors and the reconstruction, providing an unobstructed view of the masses of tracks covering the model, of what is now a fossilized, underground dune. Tsamkxao, /Ui, and /Ui stood together at several different points along the barrier, examining the tracks silently and intently with flashlights and pointers and from time to time conferring quietly with each other. The rest of us – the German archaeologists now joined by French colleagues notably

including Jean Clottes the now-retired *doyen* of French rock art research, the film crew, and myself – kept absolute silence until they had completed their analysis. The trackers' discussion was captured faithfully with fine sound and visual equipment, after which the conversation was opened up to other participants. Tsamkxao gave us the summary of the trackers' observations. One of the first things he said was that all of the many tracks on the sand dune were made by the same person.

Audible gasps came from nearly everyone else in the darkened hall. There was a sudden sense that the entire project was imperilled. Running through many of the archaeologists' heads, I later found out, was a concern that perhaps these trackers who had been brought at great expense and fanfare all the way from southern Africa would not, after all, be able to corroborate the findings of Clottes and others in the original Réseau, dating to some 40 years before, that a number of different individuals had left their footprints on the dune. The silence continued for long, uncomfortable moments. Then Clottes himself cried out that he understood what had happened.

Using his hands to show the form of a plaster foot cast with a wooden dowel sticking out of the top of it for a handle, Clottes said that when the exhibit was made, the same cast must have been used to make all the footprints. Another audible gasp from all, this time one of relief – face was saved by the French researchers who had worked so long and earnestly at Réseau Clastres – and an immense respect for the honesty of the Jul'hoan trackers was born. Jean Clottes commented on camera on his regard for their abilities. It seemed the hoped-for western/indigenous scientific collaboration was soundly launched. However, we soon found we had relaxed our guard too soon.

Lesson 2

The following day we were kitted out with the official gear we would need to spend many hours deep inside Niaux itself. We each were given tough blue overalls and rubber boots to wear and had reliable lanterns strapped to our foreheads or around our waists. We wore as many layers as we could beneath the overalls, to deflect the damp, bone-chilling cold we were told would set in about an hour after we entered the cave.

The modern entrance is at a different site from the prehistoric opening to Niaux, now collapsed. In 1949 a number of human footprints was discovered about 600 meters from the original entrance, in a side cave now known as the *Diverticule des Empreintes*. A researcher named Pales wrote in 1976 about these imprints, saying he could discern 38 of them in the now-fossilized clay in an area of about 6 square meters (Pales 1976). Pales felt that the footprints were placed both intentionally and anarchistically by two to three children between the ages of about 9 and 12. Pales' interpretation was that the randomly distributed prints were evidence of an initiatory ritual dance. Everyone was excited to see what the Jul'hoan trackers would say.

It took about 15 min of struggle with a skeleton key to open the wire grille closing off the Diverticule to the general public traversing Niaux. Guards said it had not been opened in about 10 years. Once inside, we had to crouch very low to the floor and inch along the passage to reach the imprints. There was viewing room near them for only a few people at a time, stretched out on their stomachs or their sides, to look at the footprints. The three trackers looked long and hard at the chaotic collection of tracks, while the rest of us crouched in a nearby passageway or sat precariously on rough, uncomfortable boulders. Finally Tsamkxao gave the summation: the three trackers agreed that these were the footprints of a single 12-year-old girl who left an unequal number of left and right footprints. They said the prints were made slowly and deliberately, not in a hurry or in any sort of abandon. They also said they could not imagine why the prints were executed by someone who was clearly in a standing position, since the ceiling was only 0.95 m above the floor. The only person who could make such prints in an upright position would be a very young child.

Again the challenge to published authority caused consternation among the researchers. There was a very definite feeling that, among the archaeologists, doubt of the trackers' abilities had once again flared. The trackers maintained that they were just telling what they could observe with certainty, not trying to resolve the puzzle of the conflicting interpretations posed by the height of the ceiling and the puzzling distribution of left and right prints. We left the Diverticule then and proceeded to other parts of the Niaux system. But the feeling of mistrust and upset persisted.

That night, as we discussed the day, the Jul'hoansi were angry. They felt that the scientists were not accepting or valuing their knowledge:

After all," said Tsamkxao, "they tried to trick us yesterday with the plaster cast of the same foot, and now they've shown us something we can't understand from our observations. But they don't believe us when we tell them what we genuinely know about the girl's footprints! If they're not going to take us seriously, we might as well just go on home.

I'm not an archaeologist and was accompanying this project as a translator, not a person necessarily tasked with helping to sort out interpretations. But at that moment, I realized that both I and the Jul'hoansi might be missing some vital archaeological information that might fit with their observations to make a more understandable whole. I spoke with both the Jul'hoansi and the archaeologists about the urgent need for a different kind of communication between the western and the indigenous scientists if we as a group were to forge a meaningful collaboration. We arranged to have a meeting the following day.

Effects of Lessons

The Jul'hoansi were pleased by the amount of care taken by the archaeologists to explain these things to them, and the archaeologists in turn realized anew the commitment of the indigenous trackers to telling the truth as they saw it, despite

interpretive or social conflicts it might bring up. At this meeting a bond began to be cemented, and from then on, it grew ever stronger with each passing day. There was a recognition on the part of the archaeologists that, from the start, the trackers were practicing the scientific method (in which observations are made first and comments/hypotheses only later when all known facts are in place). They saw that they themselves were in fact not practicing scientific method to the fullest until they received the consensual testimony of the trackers as fact. Ultimately the western and the indigenous researchers bonded on a base of the scientific method.

Science and Memory

Louis Liebenberg's excellent book (1990) relies on the seminal article I mentioned by Blurton Jones and Konner (1976). Here is a quote from Liebenberg (1990: 43) on storytelling:

Hunter-gatherers share their knowledge and experience with each other in storytelling around the campfire. Although this seems to involve relatively little direct transmission of information or formal teaching, much knowledge is gained indirectly in a relaxed social context. . . . Storytelling in this way acts as a medium for the shared group knowledge of a band.

Because both Liebenberg and I gained so much insight from Blurton Jones and Konner's discussion of Jul'hoan learning memory, and communication, I would like to quote the passage in their article that has informed my own work since the day I set eyes upon it (1976: 344-345):

(. . .) knowledge may be acquired mainly 'out of context,' in the relaxed social setting of the early evening, but it is then available when needed. One wonders whether the trade-off for the rather patchy nature of the knowledge transmitted is a greater efficiency in the 'filing' and retrieval of information stored in a system of the subject's own construction. This system is put to use when the subject wants to listen and when the storyteller's art gives many pegs on which to hang the information, and is quite different from one where he would try to store in his head someone else's data filed on that person's system.

The explanation for the fact that knowledge gained 'informally' is assimilated more easily and rapidly than knowledge gained under pressure or direct instruction lies somewhere common both to that psychological suggestion itself and to the fact that it usually is acquired this way in (Jul'hoan) society. We have to ask why knowledge is acquired this way, and the answer to that may be also the answer to 'why does memory work that way?' One suggestion, itself raising further questions, is in the adverse reaction many people have to direct instruction. Not only can they be intimidated and confused, but (Jul'hoansi) (. . .) can be irritated by and can disapprove of people who tell each other what to do or in any way set themselves above anyone else. This presumably (and the people think so too) relates to very basic features of their society and its ecology such as food sharing. Since it is highly probable that successful exploitation of the social hunting and gathering niche depends on extensive food sharing, this is a powerful force among the selection pressures on hunter-gatherer behaviour. It is not, perhaps, far-fetched to suggest that this force may have been strong enough for long enough to set constraints on the way that information was best transmitted from person to person and acquired by individuals (. . .) (We advocate) re-examining our

ideas on the function of old people as teachers or libraries (we suggest they are not reference libraries but are dramatized documentary television) and (...) examining closely the ways that information about subsistence is acquired and transmitted in hunter-gatherer societies. (Blurton Jones and Konner 1976: 345)

Conclusion: Talk, Narrative, and Consensus as Data

Trackers' consensual talk, like hunting stories, folklore, and myth, provides precise data for archaeology and other sciences. There is clearly much of environmental and anthropological importance, not to mention illumination of the processes in prehistory likely to be responsible for the origin and development of *Homo sapiens*, to be gained from analysis of verbal and video data from indigenous trackers of the present. In particular, a transcription and translation process for sound files can grasp immense information treasures using fine-grained linguistic analysis. This information can then be further augmented in subsequent discussion. Such processes can, using the well-honed practices of consultation and consensus common to known hunter-gatherer societies, link time-coded talk to visual signs of human presence in caves and other archaeological sites. The video format allows for the twinning of two rich sources of data in one medium. For a sample indication of the possibilities of this data, the kinds of information obtainable include not only words and their semantic meanings but body postures, demonstrated action verbs, and demographic/physical characteristics, among many other sources of understanding.

All of these signifiers are connected by narrative to the values and behaviours that have long supported human adaptation: democracy of information-sharing, tolerance, respect for others' opinions and knowledge, reluctance to rely on the knowledge of just one person, and reluctance to fail to share with all. We see the value of egalitarianism emerging as an overarching theme in prehistory for humankind. That, along with the skill of tracking based on extensive environmental knowledge, has enabled the human story.

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