New dates for the introduction of sheep into South Africa: the evidence from Spoegrivier Cave in Namaqualand

Excavation of Spoegrivier Cave in 1987 yielded an AMS (accelerator mass spectrometry) radiocarbon date of 2100 BP for a sheep phalange from the basal layer. Re-excavation of the cave in 1994 to obtain a larger sample of early livestock produced sheep bones below the base of the pottery units, dating to 1930 BP, showing that the animals probably predate the introduction of pottery to the site. The lowest layer with sheep bones has given a radiocarbon date of 2400 BP. This early date suggests that one way sheep were introduced into South Africa was along the west coast.

Spoegrivier Cave (30°29′40″S; 17°22′E) is located approximately 2 km from the Atlantic Ocean and 30 km south of Hondeklipbaai on the Namaqualand coast (Fig. 1). The cave is situated in a granite outcrop on the southern banks of the Spoegrivier, facing north. The vegetation in the surrounds of the cave and estuary is Strandveld Proper [Acocks Veld Type 34 (b)], which may be described as open semi-succulent scrub.[1] The level of the estuary is maintained by groundwater seepage and consequently the water has low salinity. The present fauna in the area includes Cape fur seal, porcupine, steenbok, grey duiker, bat-eared fox, water mongoose, red meerkat and various rodents. A wide variety of birds has also been reported from the area.[2]

During preliminary fieldwork at the site in 1987, two square metres were excavated to bedrock at about 1-m depth and a basal date of 1920 ± 40 BP (Pta-4745) was obtained at 91 cm from the surface.[3] A further date of 1390 ± 50 BP (Pta-4753) at 20 cm from the surface suggested that the site was occupied during the first 500 years of the first millennium AD. The faunal analysis of the test pit material confirmed the presence of sheep throughout the deposit, although they were particularly concentrated in the middle units. The fact that a single sheep phalange had been recovered from the basal lens just below Pta-4745 posed the problem of whether the bone was in primary context or had moved down through the ashy deposit. This bone gave an accelerator mass spectrometry radiocarbon date of 2105 ± 65 BP (OxA-3862).[4]

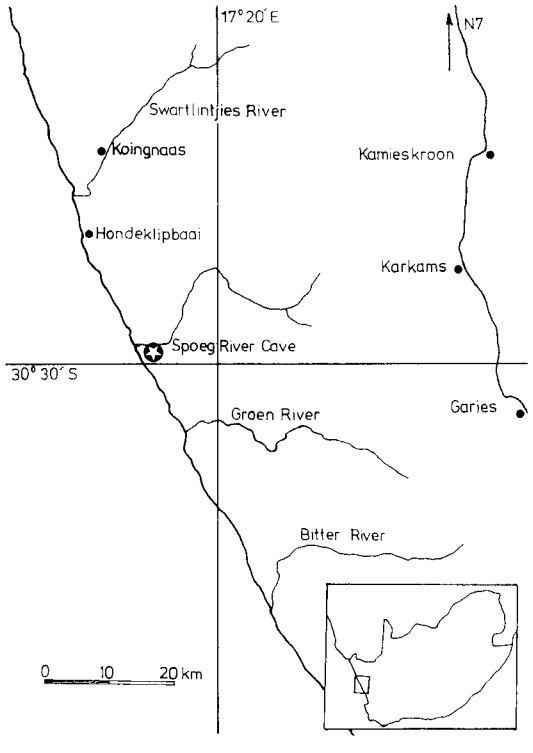

Fig. 1. The location of Spoegrivier Cave on the west coast of South Africa.

Sealy and Yates[4] addressed the issue of indirectly dating archaeological remains through the associated charcoal by proposing that direct dating of the sheep bones themselves was preferable. They conclude that 'this bone was found *in situ*' and therefore 'on current evidence, the earliest reliable determination for sheep in southwestern Africa is 2105 ± 65 BP, from Spoegrivier on the northwestern Cape coast'.[4]

The excavation of a further six square metres in 1994 was undertaken to enlarge the sample of sheep bones from the lower units. Significantly, the excavations farther to the front of the cave exposed units considerably older than 2000 years. A total of 16 layers (each comprising a number of occupational lenses) was identified down to bedrock at *c.* 1.20 m. The top six layers clearly relate to the 1987 excavations with the dates coinciding very closely. They contain pottery whereas the stone toolkit lacks the formal scrapers which occur below Layer 6. Two dates of *c.* 3500 years ago were obtained for the lower layers. The angle at which the occupational lenses were deposited in the lower layers suggests a substantial re-organisation of space within the cave around 2000 years ago, presumably with the introduction of livestock into the economy of the occupants.

A comparison of the radiocarbon dates obtained for the 1987 excavations and the top layers of the 1994 excavations (Table 2) show that there is close correlation between the upper, pottery-bearing layers. Because of the slope of the stratigraphy towards the back of the cave, however, it has not been possible conclusively to link the stratigraphic lenses of the 1987 excavations with those of 1994, and for this reason the dates have been presented separately (Table 2). The recent date of 2400 ± 25 BP (Pta-7200) from a lens 0.62 m below the surface (in Layer 10) is associated with four fragments of sheep and a lower grooved stone stained with red ochre. The more recent excavations have uncovered deposits to the front of the cave dating to 3500 years ago and beyond. The lowest layers had poor faunal preservation and were not dated. It is anticipated that that they may date to the early Holocene because of the presence of several large scrapers.

Preservation of the bone was very good and just over 34% of the total sample of about 50 000 fragments was identifiable to species or size class. Table 1 represents the broad categories of mammals, birds, and reptiles from the assemblage. Except for sheep, all other animals were wild animals and these will be discussed in a later paper. Sheep (*Ovis aries*) remains were found in Layers 1 to 10. The number of fragments was small in most layers, with the greatest numbers in Layers 5 and 6. There were sufficient fragments between Layers 7 and 10 to indicate that sheep were present in the pre-pottery period. There were no visible differences in the fragmentation and colouration of these sheep fragments compared to other bone fragments in those layers. This suggests that they were found *in situ*, although five potsherds from Layer 7 suggest that some intrusion into that layer from Layer 6 could have occurred. However, the single sheep fragments from Layers 8 and 9 and the four fragments from Layer 10 could indicate that sheep were present before pottery

*Direct dating of the sheep bones is desirable in view of the errors which may arise when fragmentary remains are dated by associated charcoal. Funding has been obtained and further AMS dating on the sheep bones from the site will be undertaken later this year.

Table 1. Species present at Spoegrivier Cave: NISP (number of identified skeletal parts)/MNI (minimum number of individuals). The various bovid species have been identified but are not included in this table for reasons of space.

(a) The pottery layers

Species	S	1	2	3	4	5	6
Canidae	-	3/2	1/1	7/2	6/2	13/3	8/3
Arctocephalus pusillus (seal)	7/2	5/1	76/5	265/6	246/15	398/17	586/12
Mustelidae/Viverridae	-	-	-	2/1	1/1	4/2	2/1
Hyaena brunnea (brown hyaena)	-	-	-	-	1/1	-	1/1
Felidae	-	-	-	3/2	2/2	3/2	6/3
Carnivora indet.	3/2	2/2	-	1/1	2/1	1/1	3/2
Rhinoceros	-	-	-	-	-	-	1/1
Equus burchelli (zebra)	1/1	-	-	-	-	-	-
Procavia capensis (hyrax)	-	2/1	13/2	45/4	27/5	33/4	26/3
Ovis aries (sheep)	-	7/2	4/2	15/2	2/1	38/4	21/3
Bovid small	8/4	21/4	53/6	177/12	145/11	197/8	135/9
Bovid medium non-domestic	-	7/3	3/2	-	4/3	14/2	16/4
Bovid medium indet	1/1	1/*	-	2/*	4/1	3/*	4/*
Bovid large non-domestic	5/3	4/2	1/1	1/1	3/1	12/3	11/3
Bovid very large	-	1/1	-	-	-	2/1	4/2
Hystrix africaeaustralis (porcupine)	-	1/1	-	1/1	-	1/1	5/1
Lagomorph	1/1	12/3	5/2	5/2	2/2	9/3	23/3
Tortoise	15/1	56/3	144/8	534/29	148/8	196/9	222/21
Bird	-	9/4	13/7	25/10	19/6	45/11	64/17
Rodent	4/2	16/4	51/12	29/8	27/7	33/10	17/6

(b) The pre-pottery layers

Species	7	8	9	10	11	12	13	14	15	16
Canidae	7/4	5/2	5/3	5/1	9/2	2/1	2/1	4/2	2/1	4/1
Arctocephalus pusillus (seal)	294/18	36/2	295/21	154/10	251/9	4/2	20/3	10/2	2/1	3/1
Viverridae	4/2	-	2/1	-	-	1/1	-	1/1	2/1	-
Hyaena brunnea (brown hyaena)	2/1	-	-	-	-	-	-	-	-	-
Felidae	2/2	8/2	2/2	5/2	1/1	-	1/1	-	-	2/1
Carnivora indet.	1/*	4/1	-	1/1	2/1	-	-	-	-	-
Procavia capensis (hyrax)	20/6	12/4	9/2	13/3	28/3	-	4/1	19/2	8/2	6/3
Ovis aries (sheep)	14/5	1/1	2/1	4/1	-	-	-	-	-	-
Bovid small	303/11	443/15	243/12	130/8	394/17	298/14	409/18	356/12	67/8	44/8
Bovid medium non-domestic	10/3	13/2	10/3	3/2	13/2	2/1	17/3	11/2	-	3/1
Bovid medium indet.	3/*	-	2/*	-	-	-	-	-	-	-
Bovid large non-domestic	2/2	1/1	1/1	2/2	10/3	-	-	1/1	1/1	6/1
Bovid very large	1/1	-	1/1	-	-	-	-	-	1/1	2/2
Manis temmincki (scaly anteater)	-	1/1	-	-	-	-	1/1	-	-	-
Hystrix africaeaustralis (porcupine)	5/1	-	-	-	1/1	-	-	1/1	-	-
Lagomorph	14/3	7/2	9/4	3/1	22/3	5/2	5/2	8/2	1/1	-
Tortoise	854/26	1409/39	431/26	349/22	825/42	840/27	1174/27	1496/34	414/20	359/14
Bird	138/22	251/20	50/13	38/15	106/21	186/17	194/19	264/22	29/7	19/8
Rodent	42/12	30/7	34/7	14/5	33/8	11/5	12/5	19/6	7/4	13/4

*Likely to be represented as MNI in bovid species.

Table 2. Radiocarbon dates from Spoegrivier Cave. Dates with an asterix were obtained from the 1987 excavations.

Lens and layer	Lab. number	Uncalibrated date (BP)	Material dated	Calibrated date
C9 Hearth 3 (20 cm)	Pta-4753	1390 ± 50*	Charcoal	AD 664
C9 Patella (45 cm)	Pta-6334	2020 ± 60*	Crayfish mantle	AD 562
C9 Hearth 12 (91 cm)	Pta-4745	1920 ± 40*	Charcoal	AD 112
FBS	OxA-3862	2105 ± 65*	Sheep bone	49 BC
C6 CST/Layer (14 cm)	Pta-6750	1450 ± 50	Charcoal	AD 648
C6 Twiggy 6/Layer 6 (45 cm)	Pta-6749	1930 ± 50	Charcoal	AD 120
C6 SAS/Layer 10 (64 cm)	Pta-7200	2400 ± 25	Charcoal	397 BC
D5 BSB2/Layer 12 (75 cm)	Pta-6987	3820 ± 60	Charcoal	1883 BC
D5 Hearth 34/Layer 13 (50 cm)	Pta-6754	3520 ± 50	Charcoal	1761 BC

was introduced.*

The evidence from this excavation shows that sheep remains were occasionally introduced into the cave in the period 2400–2100 BP. In Layer 6 at 1930 BP, the stone toolkit changes: formal scrapers are absent and a single scraper, resembling those currently in use by semi-sedentary pastoralists in Namaqualand,[5] was recovered. Pottery is present and sheep remains are more frequent from this level upwards. There are two possible interpretations of the above findings: in Layers 10 to 7 the hunter–gatherer occupants could have acquired sheep from herders in the area, whereas the herders themselves may have occupied the cave from Layer 6 upwards. Alternatively, the hunter group could have made the necessary social and ideological changes to become pastoralists themselves by 1930 BP.[6] Which of these two possibilities actually applies, remains a crucial issue to be resolved in future.

It has recently been suggested that pottery was introduced into Namibia some 500 years in advance of domestic stock.[7] The results from Spoegrivier Cave on the Cape west coast, however, as well as from Blombos Cave in the southern Cape (where sheep have been directly dated to 1960 and 1880 BP),[8] indicate that the late dates for sheep from Namibia may be anomalous. The early dates for sheep from Spoegrivier suggest that livestock was probably introduced into South Africa along the west coast rather than down the middle of the country as proposed by Elphick.[9]

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