

A low-ranking male feeds on a carcass after the females and cubs had left for their den. This was the only time we saw a hyaena feed after sunrise. / 'n Jong mannetjie, laer op die sosiale rangorde, vreet aan 'n karkas nadat die wyfies en die welpies hul deel gehad het. Dit is die enigste keer dat ons 'n hiëna ná sonop sien vreet het.

photo/foto: Ronald Tilson

THE SPOTTED HYAENA

— Predator of the Namib night

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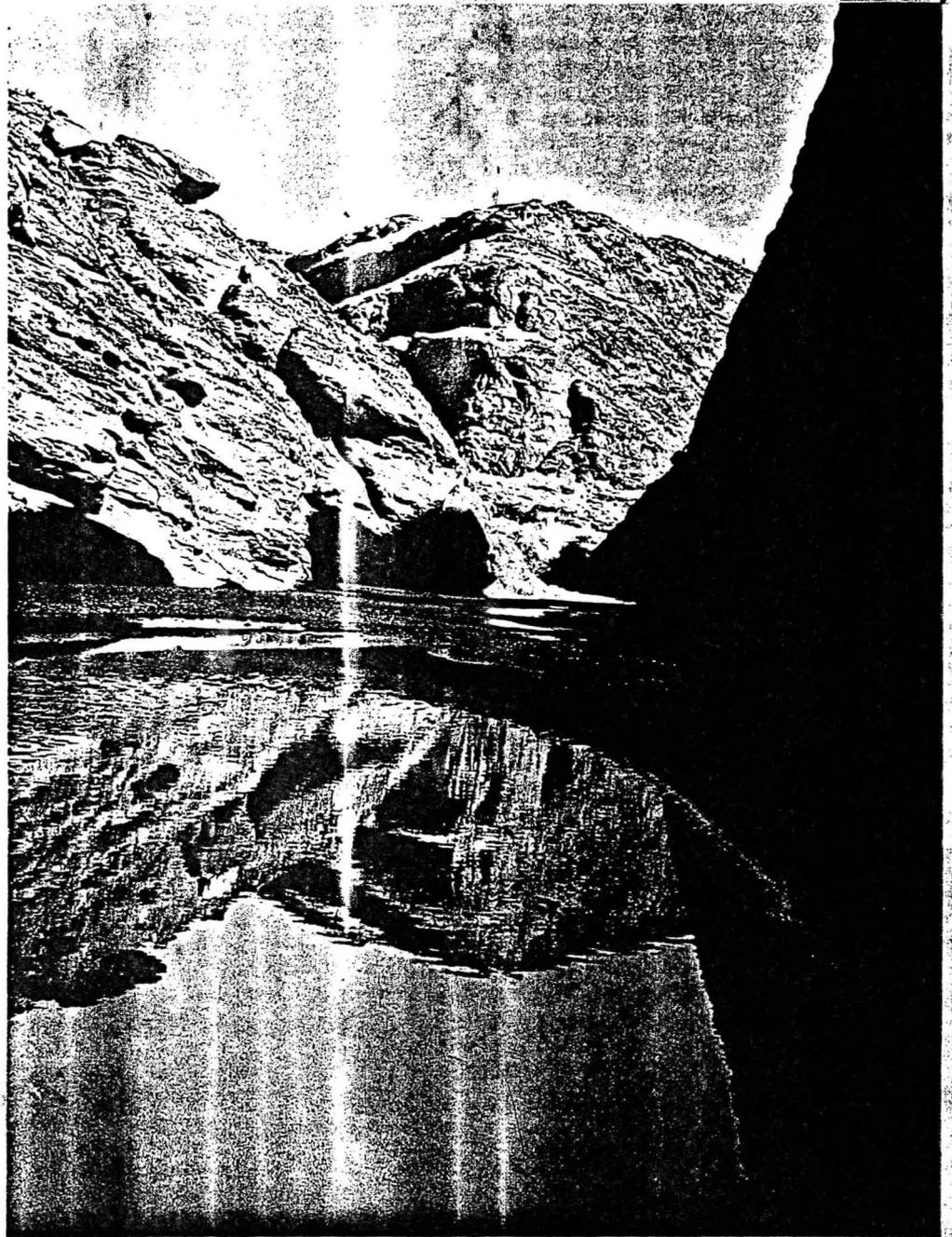
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It was a typical, hot, bone-dry, stifling summer evening, with not a hint of a breeze. Nearby, in the dry river-channel, a small group of mountain zebra jostled around a shallow water-hole. The silence was occasionally punctuated by the

It is 'n tipiese warm, dor, drukkende somersaand, met nie eens die beduidenis van 'n luggie nie. Nie ver weg nie, in die droë rivierbedding, maal 'n paar bergkwaggas om 'n vlak watgat. Die stilte word van tyd tot tyd onderbreek deur die luide gekekkel van 'n rooibekfisant wat in die doringbome oornag. Die volmaan het pas bo die strak rand van die kloof verskyn en die silwer lig val spookagtig op die gesig van 'n dooie gemsbok. Sy lang, slanke horings lyk soos twee ontblote swaarde en weerkaats 'n onheilspellende glinstering wat ons met ontsag vervul vir die jagters wat hierdie manjifieke dier neergevel het.

Skielik word die atmosfeer geklief deur 'n reeks luide tjanke, wat as 'n diep gerommel begin en styg tot 'n hoë gekerm, en 'n stewige figuur tree die arena binne waar sy en haar kamerade



The waters of the Kuiseb River at Nareb. / Die waters van die Kuisebrivier by Nareb.

photo/foto: Johannes Henschel

DIE GEVLEKTE HIËNA

— *Roofdier van die Namib-nag*

loud cackling of a red-billed francolin roosting overhead in the thorny acacias. The full moon had just risen above the stark horizon of the canyon wall, the silver light enhancing the ghostly appearance of a dead gemsbok's face-mask. Its long slender horns, angling out like two unsheathed swords, reflected an ominous glint that filled us with awe for the hunters which had felled this magnificent beast.

Suddenly the atmosphere was cut by a series of loud howls each rising from a deep rumble to a high whine, before a stocky figure stepped into the arena, where it and its companions had killed last night. Our study of spotted hyaenas could begin.

The Kuiseb River is a remote, seasonally dry river that crosses the central Namib Desert, separating a vast, barren tract of waterless sand-dunes to the south, from rocky, sparse

die vorige aand gedood het. Ons studie van die gevlekte hiëna kon begin.

Die Kuisebrivier is 'n afgesonderde, seisoenale droë loop wat die sentrale Namibwoestyn oorkruis, en die wye, barre landskap van waterlose sandduine na die suide skei van die rotsagtige, yl grasvlaktes na die noorde. Ons het ons studie in 'n deel van die Namib-Naukluftpark begin waar die Kuisebrivier 'n diep, nou kloof uitgevreet het, 'n gebied wat gekenmerk word deur steil, katedraalagtige rotswande en skouspelagtige natuurlike amfiteaters.

In hierdie woestyn is die reënval minder as twee sentimeters per jaar. In sommige jare val daar geen reën nie. Maar swaar somerneerslae in die sentrale hooglande ongeveer 400 kilometer na die ooste veroorsaak onvoorspelbare vloede deur

grasslands to the north. We began our study in an area of the Namib-Naukluft Park where the Kuiseb River has incised a deep, narrow gorge, a region marked by sheer cathedral-like walls and spectacular natural amphitheatres.

In this desert, the rainfall is less than two centimetres per year. In some years no rain falls at all. But heavy summer rains in the central highlands about 400 kilometres to the east produce unpredictable floods through the canyon. The floods bring life and sustenance to a thin, riparian acacia forest. Mountain zebra gain little moisture from the grasses on the gravel plains, so they descend precipitous trails nightly into the narrow confines of the canyon to drink from small, isolated pools. Gemsbok are more suited to arid lands and, except for droughts that force them to congregate in the canyon to feed on acacias, they roam far out into the dune-field, feeding on scattered grasses, bulbs and tubers.

As the only large predators in the central Namib, spotted hyaenas forage and feed in small, dispersed social groups, or clans. We were most familiar with the Natab clan, only ten kilometres from Gobabeb, where the Desert Ecological Research Unit is stationed. The Natab clan was under the leadership of a stout, domineering matriarch whom we named Nemesis, the mother of two cubs, Romulus and Remus. The only other female was Neptune, who was first discovered during a rare rain shower. Her small cub sometimes caused such social tumult among clan members that we named it Asazel (a biblical name meaning "desert demon").

Nimrod, an adult male, was so bold that nothing was safe from his jaws. Our tent, clothes, tinned food, cooking utensils and a dozen or more tail-lights from our Land Rover fell victim to his dubious tastes. Even before this study had commenced, Nimrod had come close to biting Ron's face while he was asleep.

Geronimo was the "black sheep" of this clan. He made his first appearance only later in our study. Despite associating with the clan, he was often chased away from food, but still managed to get his share by conducting Geronimo-style raids on a carcass, grabbing a leg or rib and disappearing to where other clan members would not bother him while he fed.

Our study area also encompassed two other clans. Twenty-five kilometres upriver lived the Nareb clan of three adults. Another 30 kilometres upriver from them was the Zebra Pan clan, comprising five adult hyaenas and two one-year-old cubs. These clans roamed over areas of 380 and 510 square kilometres, compared with the 820 square kilometres of the Natab clan. Although members of the three clans ventured up to 30 kilometres away from the Kuiseb River into the dune-fields or gravel plains, where they obtained most of their food, each clan had a centre of activity along the river, to which all members returned every day. It was here that breeding dens, shady daytime lairs and permanent water-holes were situated.

By backtracking hyaena spoor from the den areas, we could determine where and what these hyaenas were eating. Of 55 gemsbok and mountain zebra carcasses we located, at least half were hyaena kills, judging from the evidence of chase spoor terminating at the carcass, around which the ground was churned up and blood-spattered. However, by examining skulls and teeth, we realised that most of these were either very young or very old animals. An analysis of hairs from 595 scats revealed that gemsbok made up 80 per cent of hyaena diet with mountain zebra coming a far second at 13 per cent. Springbok, steenbok, klipsspringer and ostrich account for only a fraction of the hyaenas' annual diet.

The discovery that these spotted hyaenas are not just scavengers, but formidable hunters in their own right, is not entirely surprising. Thirteen years ago, a detailed study of spotted hyaenas was published by Dr. Hans Kruuk, who spent four years in the Ngorongoro Crater and Serengeti Plains of East Africa. His book — *The spotted hyena, a study of predation and social behavior* — still stands as the authoritative work on this species. Kruuk found that East African hyaenas kill most of their food, wildebeest, zebra and gazelle, but that many of the kills are stolen and devoured by lions. In contrast to the popular notion that hyaenas scavenge their food from lion, quite the opposite is often true. However, when hyaenas have a chance to scavenge, they take it, their strong jaws and bone-crushing

die kloof. Die vloedwaters bring lewe en voedsel na 'n smal oewer-akasiabos. Bergkwaggas kry min vloeistof uit die gras op die gruisvlaktes, dus kom hulle snags langs steil paadjies die kloof binne om uit klein, afgesonderde poeletjies te drink. Gemsbokke is beter by droë omgewings aangepas en, behalwe wanneer droogtes hulle dwing om in die kloof te versamel om die akasias te vreet, leef hulle ver buite in die duineveld waar hulle gras, bolle en wortels vreet.

As die enigste groot roofdiere in die sentrale Namib, jag en vreet geëkte hiënas in klein, verspreide sosiale groepe ("clans"). Ons het die Natab-groep, slegs tien kilometer vanaf Gobabeb waar die Woestynekologiese Navorsingseenheid gestasioneer is, die beste geken. Die Natab-groep was onder die leierskap van 'n stewige, dominerende matriarg wat ons Nemesis gedoop het, die moeder van twee welpies, Romulus en Remus. Die enigste ander wyfie in die groep was Neptuneus, wat vir die eerste maal gedurende 'n rare reënbuie ontdek is. Haar welpie het soms so 'n sosiale opskudding in die groep veroorsaak dat ons dit Asazel genoem het ('n bybelse naam wat "woestynduiwel" beteken).

Nimrod, 'n volwasse mannetjie, was só voor op die wa dat niks veilig voor sy kake was nie. Ons tent, klere, blikkieskos, kooktoerusting en 'n dosyn of meer agterligte van ons Land Rover het sy twyfelagtige smaak ten prooi geval. Selfs nog voor die studie begin het, het Nimrod Ron amper in die gesig gebyt terwyl hy gelê en slaap het.

Geronimo was die swartskaa van hierdie groep. Hy het eers later in ons studie sy opwagting gemaak. Ondanks die feit dat hy met die groep saamgeloop het, is hy dikwels van kos verjaag, maar het dit tog reggekry om op 'n Geronimo-agtige wyse strooptogte op 'n karkas uit te voer, 'n been of rib te gryp en te verdwyn na waar ander lede van die groep hom nie kon pla terwyl hy vreet nie.

Ons studiegebied het ook twee ander groepe ingesluit. Vyf-en-twintig kilometer met die rivier op het die Nareb-groep van drie volwassenes gewoon. Nog 30 kilometer rivier-op van hulle was die Sebrapan-groep, wat uit vyf volwasse hiënas en twee eenjaaroud welpies bestaan het. Hierdie groepe het in gebiede van 380 en 510 vierkante kilometer rondbeweeg, vergeleke met die 820 vierkante kilometer van die Natab-groep. Alhoewel lede van die drie groepe dit tot 30 kilometer weg van die Kuiseb-rivier in die duineveld of gruisvlaktes gewaag het waar hulle die meeste van hul voedsel bekom het, het elke groep 'n versamelplek by die rivier gehad waarheen alle lede elke dag teruggekeer het. Dit was hier waar die teelgate, skaduryke daglêplekke en standhoudende watergate geleë was.

Deur die hiënaspoor terug te volg vanaf die lêplekke, kon ons vasstel waar en wat hierdie hiënas gevreet het. Van die 55 gemsbok- en bergkwaggakarkasse wat ons gevind het, was ten minste die helfte deur hiënas gedood, gegrond op die jaagspoor wat doodloop by die karkasse waaromheen die grond bloedbespat en omgedolwe was. Ondersoëke van die skedels en tande het egter aangetoon dat die meeste van die diere óf baie jonk óf baie oud was. 'n Ontleding van die hare van 595 keutels het aangetoon dat die hiëna se dieet uit 80 persent gemsbok bestaan, met bergkwagga ver agter in tweede plek teen 13 persent. Springbok, steenbok, klipsspringer en volstruis maak slegs 'n klein gedeelte van die hiëna se jaarlikse voedselname uit.

Die ontdekking dat hierdie gevlekte hiënas nie net aasdiere is nie, maar gedugte jagters in eie reg, is nie heeltemal verrassend nie. Dertien jaar gelede is 'n diepgaande studie van gevlekte hiënas gepubliseer deur dr. Hans Kruuk, wat vier jaar lank in die Ngorongoro-krater en Serengeti-vlaktes van Oos-Afrika deurgebring het. Sy boek — *The spotted hyena, a study of predation and social behavior* — staan nog as die gesaghebbende werk oor hierdie spesie. Kruuk het bevind dat Oos-Afrikaanse hiënas die meeste van hul kos, soos wildebeeste, kwaggas en gaselle, self doodmaak, maar dat baie van hul vangste deur leeu gesteel en versind word. In teenstelling met die gewilde siening dat hiënas hul kos van leeu aas, is die teenoorgestelde dikwels waar. Wanneer hiënas egter die kans kry om te aas, neem hulle dit; hul sterk kake en tande wat bene kan kraak, is uitstekend geskik om hele karkasse op te vreet.

Kruuk meld 'n geval waar 35 hiënas binne slegs 36 minute 'n kwaggamerrie- en haar vul, met 'n gesamentlike massa van



Inset left: A spotted hyaena in the Kruger National Park./'n Gevlekte hiëna in die Nasionale Krugerwildtuin.

photo/foto: Gerald Cubitt

A dusty progression of gemsbok in the Kuiseb river-bed at sunset./'n Stowwerige samedromming van gemsbokke teen sonder in die droë bedding van die Kuiseb.

photo/foto: Ronald Tilson

Inset right: A Kalahari hyaena making short work of a bone./'n Kalahari-hiëna maak kortemette met 'n been.

photo/foto: Peter Johnson

teeth being well equipped to dispose of entire carcasses completely.

Kruuk reports on a case when 35 hyaenas killed, dismembered, and completely consumed a zebra mare and her foal, weighing about 370 kilograms, in just 36 minutes. The hyaenas pushed and shoved, shoulder to shoulder, sometimes climbing over and on top of each other until the carcass was buried beneath a great mass of feasting hyaenas. Under such circumstances, individual hyaenas must use strength and speed to get their fill before others have eaten everything up. Each hyaena gorges one third of a kilogram of food per minute, the whole group averaging 434 kilograms per hour. This kind of feeding is called scramble competition, not an uncommon occurrence in East Africa, where large aggregations of hyaenas are coupled with high concentrations of prey.

In contrast, all three Namib hyaena clans showed a strikingly different pattern of feeding. Even if the whole Natab clan, comprising four adults and three cubs, assembled at a carcass, individuals took turns feeding. Instead of engaging in scramble competition, the dominant female, Nemesis, always ensured herself and her cubs, Romulus and Remus, priority access to carcasses by aggressively chasing others off. Sometimes, when Neptune had joined feeding for a while, Nemesis would bite and supplant her. After feeding for some twelve minutes, Nemesis would retire and lie down to rest nearby. Only after Neptune and the cubs had done likewise, was Nimrod allowed to feed until Nemesis or one of her cubs approached to start feeding again. The superior status of Nemesis and Neptune was extended to the cubs, who easily chased Nimrod or Geronimo away from the carcass. This feeding progression down a linear "pecking order" was usually repeated five times during a 12-hour night. In the interval between feeding periods, individuals relaxed, often falling asleep or playing games with the cubs.

As a result of this orderly feeding progression, the rate of food consumption was much slower. By weighing the carcass before and after each night's observation, a nasty, smelly busi-

on ongeveer 370 kilogram, gedood, verskeur en heeltemal opgevreet het. Die hiënas het gestamp en gestoot, skouer tot skouer, soms oor en bo-op mekaar geklim totdat die karkas verberg was onder 'n massa smullende hiënas. Onder sulke omstandighede moet individuele hiënas krag en spoed gebruik om hul deel te kry voordat die ander alles opvreet. Elke hiëna verslind een derde van 'n kilogram vleis per minuut, en die hele trop se gemiddelde is 434 kilogram per uur. Hierdie tipe voedingswyse word in Engels "scramble competition" genoem en is nie 'n buitengewone verskynsel in Oos-Afrika waar groot versamelings hiënas gepaard gaan met hoë konsentrasies prooi nie.

In teenstelling hiermee toon al drie Namib-hiënagroepes opmerklik verskillende voedingspatrone. Selfs as die hele Natab-groep, wat bestaan uit vier volwassenes en drie welpies, om 'n karkas byeënk, neem individue beurt om te vreet. In plaas van 'n oor-mekaar-vallery het die dominante wyfie, Nemesis, altyd verseker dat sy en haar welpies, Romulus en Remus, voorkeurtogang tot karkasse het deur die ander aggressief weg te jaag. Soms wanneer Neptunus haar by hulle aansluit en vir 'n rukkie gevreet het, sal Nemesis haar byt en wegding. Nadat sy vir ongeveer twaalf minute gevreet het, sal sy terugtree en daarnaby gaan lê om te rus. Slegs nadat Neptunus en die welpies dieselfde gedoen het, is Nimrod toegelaat om te vreet, totdat Nemesis of een van haar welpies weer naderkom om te vreet. Die hoër status van Nemesis en Neptunus is op die welpies oorgedra, wat Nimrod en Geronimo maklik van die karkas verjaag het. Hierdie voedingsprogressie langs 'n liniêre sosiale rangorde is gewoonlik vyf maal gedurende 'n nag van 12 uur herhaal. In die periodes tussen voedingstye het individue ontspan, dikwels geslaap of met die welpies gespeel.

As gevolg van hierdie ordelike voedingsprogressie was die tempo van voedselinname baie stadiger. Deur die massa van die karkas voor en na elke nag se waarneming te meet, 'n eilendig stinkende taak, het ons gevind dat 'n volwasse hiëna gewoonlik agt (maksimum 14) kilogram vleis per nag van 'n gemsbokkarkas verorber gedurende die 70 minute waarin dit per nag vreet. Alle groepslede het genoeg tyd en geleentheid om elke nag vir ongeveer vyf nagte tot versadiging te vreet, totdat daar net vel en bene oor is. Om dié op te vreet en om die volgende prooi te jag, duur gewoonlik 'n verdere drie tot vyf nagte.

Wanneer hierdie situasie met dié in Oos-Afrika vergelyk word, wil dit voorkom of die hoeveelheid beskikbare vleis per voedende hiëna die voedingspatroon beïnvloed. Om hierdie



ness, we found that usually an adult hyaena consumed eight (maximum 14) kilograms of meat from a gemsbok carcass during the 70 minutes it fed each night. All group members had enough time and opportunity to feed to satiation each night for about five nights until there were only skin and bones left. To chew these up and to hunt the next quarry took them another three to five nights.

When comparing this situation with that prevailing in East Africa, it appears that the quantity of available meat per feeding hyaena influences the feeding pattern. To test this idea one should observe Namib hyaenas feeding on a springbok kill, which two hyaenas are capable of consuming in one night. Because this is very difficult to observe under natural conditions, we provided a goat carcass, which is about the same size as a springbok. This we placed at the site from which we removed the remains of a gemsbok carcass on which the Natab clan had fed to satiation during the previous night. When they arrived, Neptune and Nimrod did not hesitate to feed alongside Nemesis. In this scramble, the consumption rates rose to nearly equal those of East African hyaenas at small carcasses. Later two more experiments yielded similar results. We thus concluded that the type of feeding pattern exhibited by a group of hyaenas is primarily a result of competition between these individuals.

Towards the end of our study, we learnt that the desert can impose severe limitations on hyaenas. The Natab clan was forced to disperse when the only water-hole near their den dried up. Although Neptune had been a very good mother, she had to abandon Asazel, who, at three months, was still too young to trek 25 kilometres upriver with her to join the Nareb clan, which still had water. Luckily Romulus and Remus were old enough to accompany Nemesis up to the next Hottentot village, which maintained an open water-hole. Nimrod and Geronimo disappeared.

At a time when mining and other human activities are spreading their influence to the very heart of the Namib Desert, it should be stressed that such activities should not be allowed to occur without careful consideration of their impact on water resources. If this is not done and the waters of the Kuiseb are overexploited, the desert will become more desolate, lacking one of the sounds we have come to associate with the Namib night — the whoop of the spotted hyaena.

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idee te toets, moet 'n mens Namib-hiënas dophou wanneer hulle aan 'n springbok vreet wat klein genoeg is om deur twee hiënas in een aand opgevreet te kan word. Omdat dit baie moeilik is om so iets onder natuurlike omstandighede waar te neem, het ons 'n bokkarkas verskaf wat omtrent net so groot as 'n springbok is. Ons het dit op die plek geplaas vanwaar ons die oorblyfsels van 'n gemsbokkarkas verwyder het waaraan die Natab-groep die vorige nag tot versadiging gevreet het. Toe hulle aankom, het Neptune en Nimrod nie gehuiwer om langs Nemesis te vreet nie. In hierdie gewoel het inname gestyg tot amper gelykstaande met dié van Oos-Afrikaanse hiënas by kleiner karkasse. Later het twee verdere eksperimente soortgelyke resultate gelewer. Ons het dus afgelei dat die tipe voedingspatroon wat by 'n groep hiënas voorkom in die eerste plek die resultaat is van kompetisie tussen daardie individue.

Na aan die einde van ons studie het ons geleer dat die woestyn streng beperkinge op hiënas kan plaas. Die Natab-groep is uitmekaar gedwing toe die enigste watergat naby aan hulle lê-plek opgedroog het. Alhoewel Neptune 'n baie goeie moeder was, moes sy Asazel agterlaat, want op drie maande was hy te jonk om 25 kilometer stroom-op te trek om by die Nareb-groep aan te sluit wat nog water gehad het. Gelukkig was Romulus en Remus oud genoeg om Nemesis tot by die volgende Hottentot-dorp te vergees, waar daar 'n oop watergat was. Nimrod en Geronimo het verdwyn.

Op 'n tydstop waar mynbou en ander menslike aktiwiteite hul invloed selfs in die hart van die Namibwoestyn laat geld, moet dit beklemtoon word dat sodanige aktiwiteite nie lukraak toegelaat moet word sonder deeglike oorweging van die invloed daarvan op waterbronne nie. As dit nie gedoen word nie en die waters van die Kuiseb word oorbenut, sal die woestyn nog meer bar wees, sonder selfs een van die geluide wat ons met die Namib-nag vereenselwig — die gehuil van die gevlekte hiëna.

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