

→ TKW: 'A fascinating article. If you owned
 to follow in his wheel tracks & there's
 a spare seat going....'

Mitteilungen

Newsletter

Neusbrief



Jahrgang 31, Nr 9/10

September/Oktober 1990

Volume 31, No 9/10

September/October 1990

CHALLENGING THE NAMIB DUNE SEA

Dr. D.H.R. Hellwig

Foundation for Research Development, CSIR, P.O. Box 395,
 Pretoria, South Africa.

SUMMARY

Based on information in archives and literature of German colonial times, all water places known before 1914 between Lüderitz and Walvis Bay were visited on various expeditions. It was proved that these places are accessible and that the Namib dune sea can be negotiated with suitably equipped vehicles. Unravelling the secrets of the dune sea would therefore not be upheld any further by the Namibian people.

THE CHALLENGE

Thus at the northern and southern ends of the central Namib dune sea, water was found under the dunes as a result of knowledge of water places at the coast. Were there any water places in between? Logan (1960) wrote the 'Beyond these (south of Sandwich Harbour) no route has been even marked out. It is one of the most inaccessible and dangerous areas in the world, the realm of sea bird, the seal and the jackal, but not of man.'

But in 1909 (Dietrich Reimer 1909), 1911 (Anon. 1911) and 1926 (Surveyor-General 1926) maps were published indicating water places at the coast between Sandwich Harbour and Lüderitz as well as access routes. During an intensive study of German publications (mainly 'Berichte aus den deutschen Schutzgebieten' and 'Deutsche Kolonialzeitung') as well as archival documents a lot of information of water places along the SWA coastline was found. Detailed information was found in a water register (Kaiserliches Gouvernement c. 1914a), giving distances from Lüderitzbucht, access routes and clues as to how to recognize places difficult to find (like Naribis near Silvia Hill where one has to dig at low tide at the point which the sea reaches at high tide).

As many as 3 000 Ovambos worked on the northern field (between Conception Bay and Meob Bay) in the early 1920s (Bütheorn, pers. comm.) and a railroad was constructed between Conception landing place and Conception water in 1912 (Dietrich Reimer 1914). Thus the most feared portion of the Namib, the dune sea between Lüderitz and Sandwich Harbour was obviously not as waterless and inaccessible as had been generally believed.

I even located a few people who had spent years on the diamond fields and who verified information collected from the literature (Bütheorn, pers. comm.; Von Ascheraden, pers. comm.; Hoffmann, pers. comm.). One of these informants (Hoffmann, pers. comm.) participated in Reuning's Camel expedition from Lüderitz to Swakopmund in 1912 (Reuning 1913).

By 1966 reliable information on the area had been collected more than 40 years earlier. No recent reports were available. Because of the wide-spread belief in the inaccessibility of the area, no attempts were being made to enter the area for investigations of any kind.

Convinced that access to all recorded water places was possible if suitably equipped vehicles could be mustered, a plan was developed to visit these water places to collect water samples for analysis in order to obtain objective information on the water quality and to collect as much additional information as possible for further investigation in the area.

THE FIRST EXPEDITIONS INTO THE DUNE SEA

From Koichab Pan to Meob

The first expedition started on 20 January 1967 with 4 people and 2 vehicles well equipped to face the problems of traversing shifting sand dunes. The idea was to travel from Koichab Pan via Uri-Hauchab to Meob and Sandwich Harbour. As yet inexperienced, we missed the easiest access to the Uri-Hauchab via a wide dune valley leading to its western tip. Instead we used a more difficult route bringing us to the eastern end of the Uri-Hauchab, in this way collecting experience in dune travelling. The fringe benefit was that a

reliable idea could be formed on the dune covered terrain between the Uri-Hauchab and the Awasib mountains to the east of it, which later proved to be the quickest access to the Uri-Hauchab from Windhoek.

In crossing the Uri-Hauchab mountains to reach their northern side, the engine of the 1,5 t truck failed. A valve head had broken off and the piston had knocked it through the cylinder head. We radioed to Windhoek that we intended to proceed to Meob with one vehicle. We were unaware of the fact that less than 5 km away there was a landing strip which once had been used by diamond prospectors.

All non-essential equipment was left with the broken truck and all vital equipment loaded onto the 2,5 t truck. Fortunately was the vehicle equipped with a winch. We rounded the Uri-Hauchab to reach its western end that we might find the dune valley leading to Silvia Hill and the coast. Not going far enough to the west we missed the right valley. The one we had chosen took us too far north instead of northwest to Silvia Hill. In the evening we were trying to raise Windhoek when the radio gave in. We sat in the middle of the dune sea without any contact with the outside world. Handicapped as we were, we decided not to search for any access to Silvia Hill but to continue in the dune valley we were in, hoping to reach the coast somewhere between Silvia Hill and Reutersbrunn. The terrain became increasingly difficult as we approached the coast. About 15 km from the coast the well-defined dune valleys ended and criss-crossing dunes made any advance to the west almost impossible. High dunes to the west stopped us from reaching the coast on 24 January. We were forced further and further to the north. At last we saw and heard the sea on the evening of 24 January. In the morning of the 25th we decided to go due west at all costs. The 15 km belt parallel to the coast is the most difficult dune-covered terrain in the Namib. Each kilometer to the west meant hard labour. High and steep dunes as well as deep valleys had to be crossed. Without the aid of the winch and the sand anchor it would have been impossible. It took us about 5 hours to cover the 15 km. We reached the pipeline running from Fishersbrunn to the northern fields at 13h00, about 8 km north of Fishersbrunn. Thus we had passed Meob inland. We reached the prospecting camp at Fishersbrunn in time to stop a search for us by police helicopter.

Although unintentionally, we had proved that even the most difficult dune terrain can be negotiated with vehicles if they are suitably equipped. We had gained an experience which proved to be invaluable for future research expeditions into the Namib.

According to information available to officials in Windhoek, leaving Fishersbrunn by vehicle north or south was considered to be impossible. Although information collected by myself indicated otherwise, we were flown back to Windhoek, leaving the vehicle and equipment at Fishersbrunn.

Before being flown out, we searched for the Reutersbrunn water place. In spite of the firm denial of the prospecting group that any sweet water could be found where my old map (Anon. 1911) indicated it, we found the place following the description in the water register (Kaiserliches Gouvernement c. 1914a). To the surprise of the prospectors, drinkable water was dug open about 80 cm below the surface. This water place was first recorded in 1907 (Schütze 1907).

The water place at Meob was also found. It was originally used by Bushmen. Prospector Tempel extended the hole in 1909 (Kaiserliches Gouvernement c 1914a). Prospector Fisher opened the Fishersbrunn water place, also in 1909 (Kaiserliches Gouvernement c. 1914a). It is still used by Gamsbok. At all three places, the water was sampled.

From Meob to Sandwich Harbour

By providing the material I had collected on the route between Fishersbrunn and Sandwich Harbour, permission was granted to drive the vehicle to Walvis Bay. On 3 February 1967, two of the original party of four were back at Fishersbrunn.

We paid a short visit to Meob landing place where one still finds the remains of an old shack filled with unused diamond jigs rusting away.

There are two routes from Meob area to Conception Bay. One leads along the water's edge of the sea with the treacherous salt pans to the east. The other route runs inland, east of the salt pans. The route along the beach is generally easier, except for certain places where one can be trapped in quicksand. Travelling with two vehicles, the second of which is equipped with a winch, this route is perfectly safe. Travelling with one vehicle is probably rather risky. Therefore, we chose the inland route.

Following the pipeline we passed the old diamond camps of Charlottenfelder, Holsatia and Grillenberge, where we turned west towards the coast, in this way missing Conception water. For long stretches the route leads over solid ground. Where the spurs of the dunes reach the salt pans, which extend from the beach up to 10 km inland, one travels over the dunes or along the edge of the pans where the dune sand still covers the pans. We had a few narrow escapes by getting too close to the edge of the pans. About 2 km from the sea we crossed the pans and reached the beach about 15 km south of the camp of the Eduard Bohlen.

Today the camp lies about 200 m from the water's edge. Using a dune or a ramp, one can reach the dock by car. 15 km further north, Conception Bay is reached. The landing place for the braker boats and the end of the railway leading to Conception water are approximately 2 km off the beach at the edge of a salt pan. In the 1920's this must have been the edge of the Conception Lagoon.

North of Conception Bay a dune wall along the sea had to be passed at low tide. At the

of the 1,5 t truck was organized. On 17 February a party of three (the two who took the truck from Meob to Walvis Bay plus a mechanic) left Windhoek for the Uri-Hauchab using the 2,5 t truck again plus a light 1 t pick-up. As a result of the first expedition a route through the Awasi mountains was chosen. Next to the dune sea the sand tyres were fitted.

Approximately 30 km of dune-covered terrain was crossed without any difficulty. In the meantime we had learned (sometimes the hard way) to negotiate dune-covered terrain, avoiding problematic spots by either identifying them from the vehicle or inspecting them in time. We reached the Uri-Hauchab at midday on 18 February and in the later afternoon a new cylinder head was fitted to the broken truck.

By now we knew of the landing strip at the southern side of the Uri-Hauchab. We searched for it in vain, although we did find it during a later expedition.

We followed the Uri-Hauchab to the western outcrop, then chose a dune valley which led us in a NW direction. It proved to be still too far north. Close to Silvia Hill, which we had approached from just north of it, we had to cross about 1 km of crisscrossing dunes. This no longer presented a serious problem, particularly as we were traveling with more than one vehicle. By midday we reached Silvia Hill.

This mountain outcrop next to the sea is covered with stone circles indicating extensive settlement over long periods. Mussel shells were found in abundance, particularly white sand mussels which had most probably been an important source of protein, for the people who lived here.

The access to the beach was relatively easy. We left the vehicles behind and walked north in search of the water place near Waribis, which was found following the description of the water register (Kaiserliches Gouvernement c. 1914a). Without this description it is practically impossible to find this place, which was originally indicated to the police patrol from Spencer Bay Police Station by a bushman guide probably around 1910 (Voit 1910). Under the suspicious eyes of the mechanic we dug a hole at that point on the beach which the sea reaches at high tide. From the water's edge at high tide a dune wall rises to at least 10 m high. There is no indication of water whatsoever. Fortunately, the mechanic did not give expression to his thoughts. When offered a drink from the hole, he first refused. Unfortunately, I did not take a photo of his face when, in fact, he did drink. He probably started believing in miracles.

Returning from Silvia Hill, we found the right dune valley stretching south east. It is like a highway through the dunes. It reaches the Uri-Hauchab at its extreme SW outcrops which cannot be seen from a distance.

Thus the broken truck was mobile again and a relatively easy access route to Naribis had been established.

From Uri-Hauchab to Sossus Vlei

The easiest way home would have been to follow the same route back to the Awasi mountains. By now we had gained full confidence in our vehicles as well as in our capability to move through any type of dune-covered terrain. Since all the well-defined dune valleys covering the central dune sea stretch SE-NW. It seemed moving north would not present serious difficulties. Sossus Vlei is about 80 km north of the Uri-Hauchab and well-defined dune valleys lie in between. Doing well

supplied with food, water and petrol, it was decided to move north to prove that travelling through the central dune sea was no obstacle for research expeditions into the central Namib.

On 21 February 1967 we left the Uri-Hauchab, trying to maintain a northerly direction, which proved to be more difficult than we had expected. Since no landmarks assist orientation, there is much guesswork involved in determining how often to cross from one valley into the next one further north and still move in a predominantly northerly direction. After travelling about 70 km we reached the first rocky outcrops near Sossus Vlei. Thus far we had travelled without problems.

Around Sossus Vlei one finds dunes running right across the valley, blocking the passage to the north. This is probably a result of the wind direction being changed by the rocky outcrops. We rounded the outcrops to the west and were soon blocked by an oblique dune. We tried the eastern side and proceeded far enough to see the trees in Sossus Vlei. A large valley lay in front of us, but the access was a way of no return. (At least not an easy one). We slid down a 30° decline into the valley which carried us on to a gravel plain next to Sossus Vlei but separated from it by an oblique dune. This dune proved to be the toughest obstacle we had met so far. It was 16h00 and we wanted to bath in Sossus Vlei that evening. 50 km above us to the east up a slope too steep to take at right angles, there was a small depression about 1 m below the dune crest. Charging the slope at an angle to reduce the gradient and racing the engine recklessly when we started charging the slope (there is no chance to change gear when racing up the slope) we managed to get the two small trucks into the depression where they had to be turned to 90° to face the crest. The crest was flattened, the car reversed up the opposite slope and was then 'thrown' over the crest. By sunset the two cars had reached the northern side of the dune. The 2,5 t truck could not reach the small depression below the crest. In moonlight we worked trying to use the two vehicles north of the dune as anchors and to winch the 2,5 t truck across. Dead tired we went to sleep at about 24h00. By 03h00 we were up again. One more try with the winch and then we gave up. We managed to get the truck halfway up the slope. The last resort was the sand anchor which takes 1 to 2 hours to plant.

The sun got hotter and we got weaker but by 10h00 the big truck was in the depression below the crest. Shortly afterwards we lay in the shallow water of Sossus Vlei to recover. In the late afternoon of 22 February 1967 we were back in Windhoek.

From Lüderitz to Spencer Bay Nordhuk

Up to Saddle Hill this route was known to the Consolidated Diamond Mines (CDM) security staff as well as to the diamond police stationed in Lüderitz. Because of the changing conditions it can be smooth sailing or somewhat problematic.

On 4 May 1967 a party of four (including the two who participated in the other trips) left Windhoek using the same two vehicles which had proved to be an excellent combination. From Lüderitz to Anichab one travels through relatively soft dunes up to Kegelberg and then during lowtide along the beach. Blue Mountain can sometimes not be passed at the beach and a route around it must be found inland. On the way to Saddle Hill one travels mostly along the beach during low tide. Höhlenberg must be passed inland. There are rocky outcrops along the beach route which may be exposed at times and then it can be difficult to pass. In parts it may be necessary to cover the rocks with sand before passing. Knowing the route, the only serious problems

which one may experience, is the breakdown of a vehicle at a spot from which it cannot be removed before the high tide moves in. This could mean writing off the vehicle.

At Saddle Hill and Saddle Hill North diamond camps are found which date back to about 1910. Both water places were opened in 1909 by the police at Spencer Bay Police Station (Kaiserliches Gouvernement c. 1914a). In the early 1950's Moshe Kahan operated in the same area and became a millionaire. There is, of course, sufficient water for such activities. Water was even a problem at the diggings. Pumps had to run 24 hours/day to keep the diggings dry enough to be worked.

From the diamond camp at Saddle Hill North a route was followed which was identified on aerial photographs. This route is difficult to negotiate in places where it moves through rocky terrain. A much easier route was found years later; this was the water supply route from Saddle Hill North (in the old days referred to as Spencer Bay Water) to Spencer Bay used to supply the police station and the diamond diggers with water. Assisted by aerial photographs an access route to Spencer Bay Nordhuk was found. Leaving the high rocks north of Spencer Bay to the west, one reaches a dolerite dyke. A break in the dyke leads into a valley taking one right to Nordhuk. Before entering the valley one must ascertain that it does not become a way of no return. The valley slope is steep in places and may be covered by very soft sand.

The water place that was found was, at its best, highly brackish, as was proved by various visits later on. Reuning (1913) does not seem to have known of this water place (he did not know of Naribis either). It is, however, listed in the water register (Kaiserliches Gouvernement c. 1914a) ending with its last entry in 1914.

According to the available information no water places are known between Spencer Bay Nordhuk and Naribis. (At a later visit to this area remains of diamond activity were, however, found all along this coastline particularly in the Oystercliffs area). No attempt was made to travel further north from Spencer Bay Nordhuk.

On the return trip the water places of Gross- and Klein-Anichab between Kegelberg and Hottentotten Bay were searched for, again following the description in the water register (Kaiserliches Gouvernement c. 1914a). Both places were found. In the first hole dug at Klein-Anichab we only found water at a depth of about 3 m. We had so much confidence in the water register, that we did not give up until water was struck. Later water was found in the area at a depth of 50 cm.

This Anichab water place has been known since 1902 (Moritz 1911). As early as 1903 (Schütze 1907), Anichab was considered as a possible source of fresh water for Lüderitz. Plans for a water project drawn up in 1905 were finally filed in 1910 (Kaiserliches Gouvernement c. 1914b) because of the difficult access to the area. Water samples were collected for subsequent analysis. The same evening the party returned safely to Lüderitz.

APPRAISAL

By completing the expedition from Lüderitz to Spencer Bay Nordhuk we had eventually achieved our original objectives. All water places recorded by 1914 were found and we proved that all are accessible by suitably equipped vehicles. We proved that the much feared dune sea between Lüderitz and Walvis Bay can be negotiated with suitable vehicles including the area around Sossus Vlei which is covered by the highest dunes in the world. This meant that for any investigations in the

dune-covered portion of the Namib the accessibility was a technical problem only. Unravelling the secrets of the Namib could not be held up any longer by the myths of its inaccessibility and danger. We did, in fact, not discover anything new. Information buried in archives or in literature, the existence of which was either forgotten or the contents not taken seriously, was proved beyond any doubt to be absolutely reliable and correct.

Between 1968 and 1974 I took several expeditions into the dune sea between Lüderitz and Sandwich Harbour, most of them in co-operation with Dr Mary Seely, Director of the Desert Ecological Research Unit of the Transvaal Museum. Scientists of any discipline which could contribute to the knowledge of this special desert environment participated. Today accessibility is only a matter of largely technical and financial consideration (amongst many others) if a visit to a particular part of the Namib dune sea is planned to study a special aspect of its unique ecology. Many of its secrets have been unravelled thanks also to the facilities available to visiting scientists at the Namib Desert Research Institute at Gobabeb and to its enthusiastic Director, Dr Seely.

SOME RESULTS OF RESEARCH EXPEDITIONS INTO THE NAMIB DUNE SEA

Water potential

The general conclusions which were drawn from the investigations into the water potential under the Namib dune sea were:

- (a) That fresh water resources exist all along the coastline between Lüderitz and Walvis Bay at places named Anichab, Saddle Hill South and North, Spencer Bay, Naribis, Meob area, Conception Bay and Sandwich Harbour. Considering the volumes established in the areas around Sandwich Harbour ($1\,500 \times 10^6 \text{ m}^3$) and Koichab Pan ($500 \times 10^6 \text{ m}^3$) it can justifiably be expected that the dune sea between Lüderitz and Walvis Bay has a water potential of many times those volumes.
- (b) Apart from the Conception area water, containing a total salt concentration of $1\,000$ to $3\,000 \text{ mg l}^{-1}$ was found at all other places if pains were taken to obtain samples not affected by evaporation. In comparison water found in Sossus Vlei or Tsondabvlei has a total dissolved solids concentration of approximately 500 mg l^{-1} . This indicated that the water quality is likely to improve with the distance from the coast (Hellwig 1968).
- (c) Age determinations indicated that the water takes approximately 7 000 years (Vogel, pers. comm.) to reach the coast from inland. The distances between Koichab - Anichab, Sossusvlei - Naribis, Sossusvlei - Meob are all approximately 70 km, which indicates a travelling time of 1 m yr^{-1} , which is a realistic figure for the tertiary deposits under the dune sea. The Conception water is much saltier ($7\,000$ - $8\,000 \text{ mg l}^{-1}$ TDS; Hellwig 1960) but the distance to Tsondabvlei is 90 km. (No reliable age available). At Sandwich Harbour, water with a total dissolved solid concentration well below $1\,000 \text{ mg l}^{-1}$ is found (Hellwig 1968, 1974). The distance to the Kuiseb River is approximately 25 km. This water was found to be relatively young (Vogel, pers. comm.). There are strong indications that the coastal water resources are, in fact, fed underground from such inland places as Koichab, Sossus Vlei and Tsondabvlei and the Kuiseb River.

Palaeontology

Calcified reeds stalks found at Conception and Fishersbrunn, a

Paleontology

exposed mud stalks found at Conception & Fishersbreen

fe metres above the present ground water level were dated at 11 000 years old (Vogel & Visser 1981). At that time the water level in these areas sustained from inland, was thus sufficient to permit the growth of reeds as at Sandwich Harbour today.

Hinnites shells (a genus of scallops) were found in the Meob area. They were dated at 7 000 years old (Vogel & Visser 1981). Today the coastal water is much too cold to permit these mussels to survive.

At the clearly visible old coastline between Conception Landing place and Conception water, about 5 - 6 km inland, shells were collected and dated at 1 000 years old (Vogel, pers. comm.).

These results clearly indicate changes in the climate and sea level during historic times.

Archaeology

Datings of middens, pots, bones and charcoal, found along the coastline of the dune sea as well as inland, cover ages of up to 1 000 years (Vogel & Visser 1981). Two skeletons unearthed at the stone circles on Silvia Hill were dated at 870 and 660 years old (Vogel pers. comm.). Thus this hostile desert country with its apparently uninhabitable environment was roamed by people at least for the past 1 000 years, gathering the food provided by the coastal water and the sandy beaches. Stone artefacts also occur frequently throughout the Namib. A mystery not yet solved is the fact that well formed hand axes may be 12 000 years old, whilst crude flakes may be of much more recent origin (Seely 1987).

Biology

Here I must refer the reader to the relevant literature. The information collected over, say, a period of 20 years, is enormous. Special survival mechanisms have been discovered in fauna from insects to great mammals like the oryx antelope, permitting such animals to survive the extreme environmental conditions of the Namib. Certain animals have adapted to living in dune sand to such an extent that this has become, for them, the only medium in which to survive. This fact has contributed to much speculation about the age of the Namib.

Namib age

According to current thinking (Seely 1987), the climate of the Namib has varied between arid and semi-arid for at least the last 30 million years. Tertiary-age dunes are found beneath the currently active dunes at Sossus Vlei. The Benguela Current, which was fully developed about 5 million years ago, plays a major role in maintaining the arid conditions in the Namib today. The present dune sea between Lüderitz and Walvis Bay seems to have formed sometime thereafter, but the final word has not yet been spoken.

CONCLUSION

The challenge of the Namib will remain an attraction to those people who are drawn to the extraordinary. Working in the Namib has lost most of its terrors but the flair of adventure, the isolation and tranquility will remain an attraction to the 'right' people. Although a lot is known of the Namib dune sea today, there is still plenty of scope for the enthusiastic scientist to contribute to solving the remaining mysteries and to reduce the white spots on the scientific map of the Namib.