N. DE HOOP VLEI GORGE

Desk Note N8c. Hydrology – De Hoop Vlei water level – 1900 to 1960

Melkkamer, on the west bank of the De Hoop Vlei.

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The Salt River carries very little water, and as it was blocked from the sea by shifting sand dunes, the vlei was formed. The input of water into the vlei is determined by the amounts of rains over the river's catchment area and water from springs along the shores of the gorge. The vlei loses water to seepage and evaporation.

The following paragraphs are two accounts about the events regarding the water in the vlei.

From Ann and Mike Scott's booklet "The People of De Hoop", 2002 (page 23):

DRY PERIODS

The vlei regularly becomes completely dry. During these periods (including in 1992, 1989, 1975, 1945 and 1903; *what about from 1992 to 2002?*) it is possible to walk across from De Hoop to Melkkamer with dry feet. Only a little water remains at the bottom of the vlei for the remaining birds, supplied by the fountains such as Fransfontein, Tierhoek and Grootfontein.

SINKHOLES

In the past the lower reaches of the vlei also used to dry out completely towards the end of each summer. The water drained down sinkholes, the largest of which was known as *Cloete se gat*. According to Dr Hey, there were originally two sinkholes through which the water drained from the vlei. P.L. Cloete apparently filled in one of these holes. Rumour has it that at the south-eastern, bottom end of the vlei was a second hole which was apparently quite large as the water level quickly sank after flooding. During the years when rainfall was below normal the water level also sank quickly and for this reason, according to Japie Neethling, one of the earlier owners eventually filled this hole with stones and rubble, resulting in a more permanent water body. A few years later heavy rain brought down sand and silt, which further sealed the sinkholes. Later strong winds closed off the vlei by blocking the exit to the sea. With each successive winter the lake increased in size until it reached its present length of 15 km and width (in places) of 500 m.
[**NB compare size of vlei on older maps, e.g. 1890 with 1969*]

FLOODS

Great floods have been recorded in the area in 1906 and 1957; before this, floods were recorded at least in 1792, while in August 1986 unusually heavy rains were also recorded.

During the floods of December 1906, Oom Jannie Human described how people could visit the upper storey of the limestone stables at Melkkamer by boat, where they made music and had a party (see Chapter 4). During these floods two large milkwood trees at Melkkamer died after being inundated for some time. According to the thickness of their stems they are believed to have been 500-800 years old.

During the winter of 1957 the rains fell with unusual persistence in the Bredasdorp area. The vlei gradually filled up and in September there was an overflow at two points on the western bank of the vlei onto the adjacent farms, Melkkamer and Reimerskraal. The water flowed

westwards and eventually inundated most of the lower half of the farms of Melkkamer, Matjiesfontein and three-quarters of Reimerskraal. (Figure B.2.1 added by the author). According to Uys and Macleod "a sheet of water lying parallel with the coast and covering approximately 4 000 morgen [*3 426 ha*] was consequently formed almost overnight". The depth reached up to 20 feet, and only the tops of windmills were visible in places. The inundation lasted 1.5 to 2 years, and for a further 2-3 years the water receded partially through seepage and evaporation, and a series of pans resulted. The waters attracted water birds in their thousands, forming large nesting colonies. Flamingos bred for the first and only time on record in the Western Cape. Farmers whose pastures were inundated sent a petition to the Administrator, asking for the vlei to be drained by excavating a tunnel to the sea (in 1927, see below). Fortunately, these proposals were eventually shelved.

In August 1986, 185 mm of rain fell at De Hoop, mostly over one week; the average rainfall for this month is about 40 mm. This caused the vlei level to rise dramatically from 1.5 m in August to 4.7 m in September. An interesting occurrence was noted at this time. The water that fell on the flats surrounding the homestead, and on the limestone hills to the north, all collected in the Dronkvlei area. The veld was saturated, with large expanses of water all flowing eastwards, giving rise to speculation that this is the origin of the name Dronkvlei (derived from *Verdronken- vlei,* or drowned vlei). The large number of caves and *chimney pot* formations in the limestone of this area could also be associated with this phenomenon.

THE WAY TO THE SEA

In 1927, when Arend Brink Neethling was the owner of De Hoop, Gaffie du Toit of Reimerskraal (west of De Hoop) tried to open the sand dunes so that the waters of the vlei could find their way to the sea. They dug frantically by hand, but all efforts were in vain. Although the water did run into the sea, the sides rapidly caved in again and the way was closed by drift sand a few days later, when the labour force was away in Bredasdorp (apparently) to celebrate New Year's Eve.

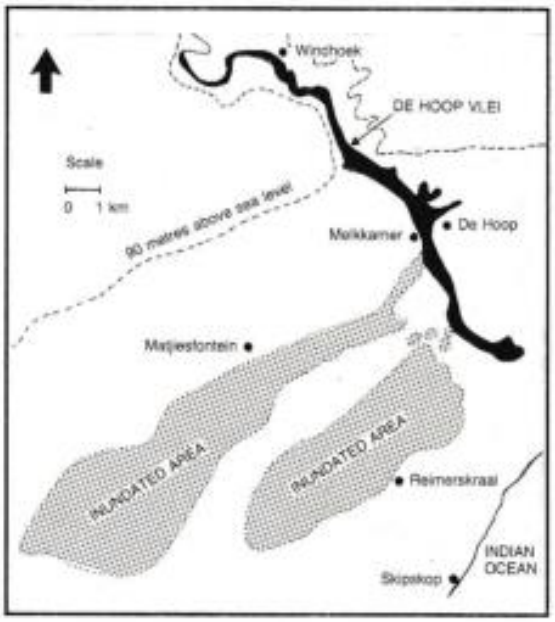

Figure 1. The extent of the 1957 flood (from the magazine The Ostrich, Vol 38 No. 4).

From Shirley E Butcher's MSc thesis "Environmental factors and the water regime of De Hoop Vlei", 1993 (part of the introduction):

Some controversy surrounds the drainage mechanism of the vlei. The vlei has not opened directly into the sea within living memory. The earliest maps and sketches of the vlei are not more than 130 years old, but indicate a surface separation from the coast much as can be seen today. It is possible that the extent of the mobile sand dunes has increased during this century (Dreyer, 1938).

The current view is that the vlei is depleted mainly by evaporation and underground seepage. But local oral tradition is firm that De Hoop Vlei did have a direct subterranean outlet to the sea via a sinkhole near the centre of what is now the vlei. This hole is reputed to have been situated just south of the stone wall which enters the vlei from Melkkamer. It is said that this hole was not situated at the lowest point of the bed and only served to drain the vlei directly once the water level had risen sufficiently (M. Swart, pers. comm.). It is claimed that by this means the vlei could drain in about three months and it was uncommon for much standing water to remain from one winter to the next (M. Swart, pers. comm.).

During a dry spell (possibly 1902/3) this sinkhole is claimed to have been deliberately blocked in an attempt to

reduce drainage from the vlei and to prevent cattle from falling into the hole. Another version of the story states that a wall surrounding the hole (to keep cattle out) collapsed inward and it was thereafter decided to block the hole completely ("behoorlik toegestop" - to use the local idiom). Shortly afterward (in December 1906) the Gout River came down in flood, further filling this hole with mud and debris, and since then it has not been possible to locate the legendary sinkhole. Judging from rainfall records, the water level in the vlei must have remained high for at least three years after this flood (see Section 4.4).

To compensate for the supposed blockage of the original sinkhole, two channels were dug. The timing and sequence of these attempts is uncertain. A channel known as "Cloete's sloot" was dug in an easterly direction near to Die Mond to drain into another sinkhole which, it is claimed, is connected to the same underground watercourse as others in the area (and possibly the original sinkhole) (J. Blacquiere, pers. comm.). It is even possible that "Cloete's sloot" was dug many years previously for irrigation purposes during a period of high water levels, as Cloete was no longer associated with De Hoop at the time of the 1906 flood. The remains of this channel are still evident and "Cloete's sloot" is now operated by a sluice gate in the dyke constructed by the Cape Department of Nature Conservation in 1958 (Van der Merwe, 1976). It is still regarded as an overflow outlet and its last recorded use was during the winter of 1962 according to the diary kept by the Nature Conservation Officer at De Hoop. The channel does not have an even downward gradient and it is

doubtful whether this ineffectual-looking ditch could play any significant role in flood control.

The other drainage attempt involved digging an open channel to the sea. It was a cause which gained the practical support of almost all the local farmers at the time. A channel was dug in a south-westerly direction towards the beach just west of the extensive mobile sand dunes. This effort was not a success and the channel became filled with sand in a very short time (within a matter of days). Some remains of this channel can still be detected on recent aerial photographs (C. Burgers, pers. comm.).

The question of controlling water levels was again raised during the 1940's. Consultant engineers suggested laying two pipes of 6 ft diameter to follow the course of "Cloete's sloot", but underground. These were to be operated by a sluice gate. The estimated cost of £40 000 was beyond what the farmers could afford at the time and the matter was dropped (H. Wood, M. Swart, pers. comm.). (It is not certain whether this was an official investigation or not, as there does not seem to be any documentation relating to it.)

The flood-and-drought regime and the drainage of the De Hoop Vlei is a subject for further studies. Also read other notes in this chapter and in the Appendices.