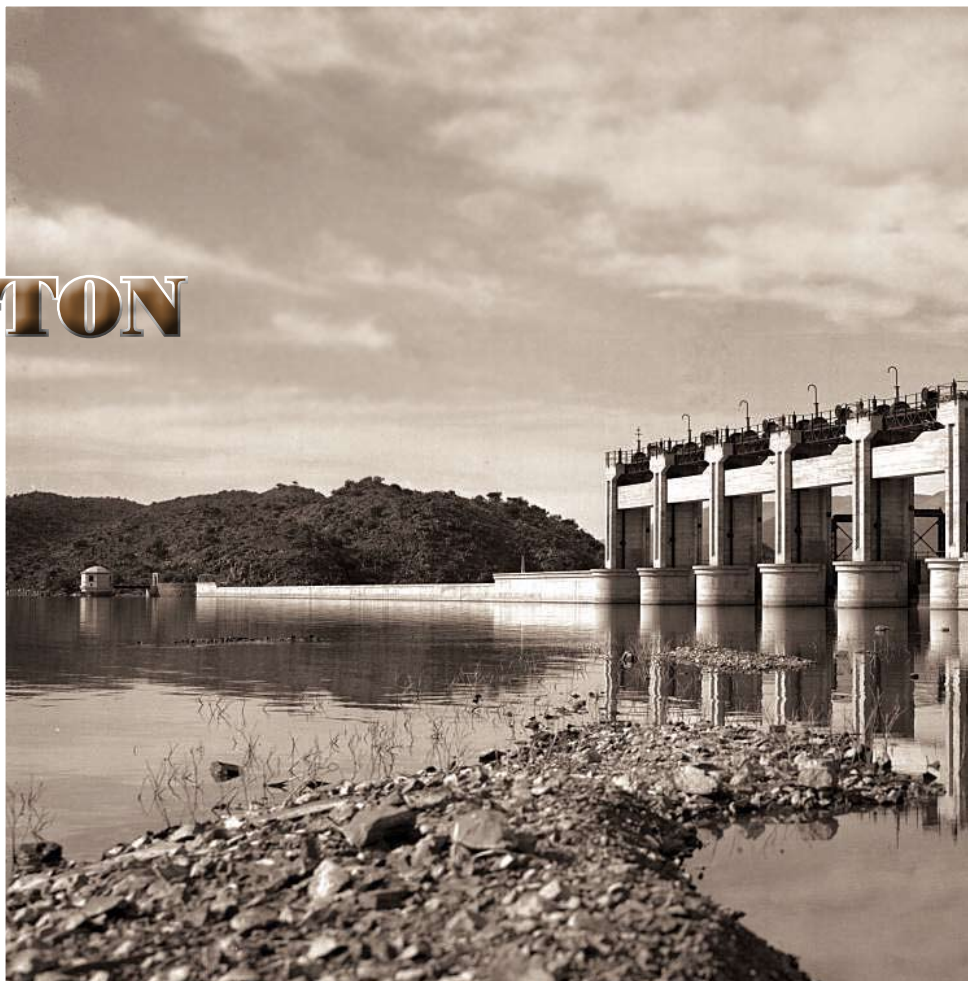


DARLINGTON DAM - SA's Troubled Lake



Neither drought, depression, disease nor the dearth of the barren Noorsveld could prevent the construction of Darlington Dam, near Kirkwood, in the Eastern Cape. Lani van Vuuren explores the chequered history of this dam, at one time the second-largest in South Africa.

The initiative to establish large-scale irrigation in the Sundays River Valley can be traced back to the arrival of prominent Port Elizabeth auctioneer James Somers Kirkwood. Described as, 'a tall man of pleasing personality, flowing beard and smiling eyes', Kirkwood came to the valley in 1877 to oversee the auction of the farm 'Gouvernements Belooning'.

PIONEER'S DREAM

The story goes that on that particular day Kirkwood could not reach the farm

as the Sundays River was in flood. So he climbed a hill (known today as the 'Look-out') from where he had a view of the entire valley. The view he saw inspired him, and shortly thereafter he bought Gouvernements Belooning himself and settled in the area.

In 1877 legislation was passed on irrigation which aimed to encourage, by means of financial assistance, settlement on farms and the development of private irrigation schemes. Kirkwood tried to convince his neighbours to combine to form an irrigation scheme,

which would be entitled to assistance from the government. The majority of farmers, however, viewed the legislation with suspicion, and in the end Kirkwood bought up sufficient land on his own so as to float a company and so establish an irrigation scheme himself.

In 1883 he owned 21 farms in all, totalling more than 35 000 morgen (29 984,5 ha) of land. He introduced irrigation on a small scale on his farms through the years. In December 1883 Kirkwood founded the Sundays River Land and Irrigation Company. Despite all the



DWEA/eWISA

A historic photograph of Darlington Dam, taken in 1936.

publicity given to the enterprise when the lists closed in January 1884, not a single share was taken up.

Kirkwood could not have picked a worse time to start his venture. At that time South Africa was in the grips of a depression, and those who had money preferred to invest in ostrich farming or the newly established diamond mines at Kimberley where returns were not only quick but certain and adequate. Kirkwood died a broke and bitter man in 1889.

STRATHSOMERS ESTATE

In 1887 Kirkwood's insolvent estate was taken over by the Guardian Assurance

and Trust Company of Port Elizabeth, and in 1903 it was sold to the Strathsomers Estate Company. The company employed engineer David Gerrard to bring more land, on both sides of the Sundays River, under irrigation, and in 1909 Gerrard, along with Ninham Shand (who became the company engineer in charge of this work) inspected the site of the Korhaan's Drift scheme.

The scheme entailed the construction of a diversion weir across the Sundays River at Korhaans Drift where the river leaves the Zuurberg Mountains and enters the Sundays River Valley. The scheme was delayed for some years by litigation as other irrigators contested the company's water rights. In the end, the court ruled in favour of Strathsomers Estate and construction of the Korhaans Drift weir got underway in 1911.

At its completion in November 1913, Korhaans Drift was the largest irrigation scheme in South Africa, designed to irrigate 4 875 morgen (4 176,4 ha) of land. The weir was 286 feet (87,2 m) wide, with two abutments 30 feet (9,1 m) high from the crest of the weir. Water for irrigation was released through seven sluice gates built at right angles to the river, and emptied into the main canal, 32 inches (812,8 mm) wide.

Kirkwood's vision eventually attracted others to the idea of using the water of the Sundays River to irrigate large tracts of land. By 1913, there were three irrigation companies in the area: the Strathsomers Estate, Addo Land and Irrigation Company, and Cleveland Estate, who all had weirs on the Sundays River.

THE ARRIVAL OF SIR PERCY FITZPATRICK

Famed author and businessman Sir Percy Fitzpatrick visited the Sundays River Valley to view the irrigation schemes in 1913. Soon thereafter he purchased a block of farms surrounding Addo. Fitzpatrick was always keenly interested in land settlement. In February 1914 negotiations were opened with the Cleveland Estate, which was experiencing financial difficulties. This resulted in the birth of the Cape Sundays River Settlements Company, of which Fitzpatrick was chairman.

Fitzpatrick committed himself to citrus as a core crop. Port Elizabeth provided a major market and port nearby, and exports to Europe had already begun, taking advantage of South Africa's reverse season. Citrus production, however, required a sustainable water supply.

The droughts of 1913-1915, coupled with the collapse of the ostrich feather

DARLINGTON DAM: FAST FACTS

Completion date: 1922

River: Sundays

Nearest town: Kirkwood (Eastern Cape)

Type: Gravity

Height above lowest foundation: 48 m

Length of crest: 418 m

Volume content of dam: 0,209 million m³

Gross capacity of reservoir (in 1975): 252 million m³

Purpose: Irrigation

Maximum discharge capacity of spillway: 632 m³/s (controlled)

Source: DWEA



The dam wall has two spillways with control gates – the main spillway and an auxiliary spillway. Near the left abutment is the river outlet system with a number of release valves.

industry (which forced farmers to look at other income possibilities) made it perfectly clear that any permanent extension of irrigation, coupled with settlement operations on a large scale, would be impossible unless large storage works were undertaken and the entire system of irrigation altered from flood irrigation to irrigation based on the storage of flood water.

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A flood in 1916 reinforced the argument that 'large volumes of water were being lost', which could only be rectified with a large storage scheme. The irrigation companies decided to work together and approached the Union government

with a view of establishing a large storage dam at the head of the valley which would ensure adequate and perennial supplies of irrigation. Minister of Lands, Col Hendrik Mentz, and Director of Irrigation, Francis E Kanthack, supported this idea. Not long after, the project was approved by Parliament.

In 1917, the Sundays River Irrigation Board was established with the sole purpose of constructing what was soon named Lake Mentz after the Minister of Lands. A loan was provided by the State to construct the dam and the repayment of the loan was the responsibility of the irrigators by the imposition of a canal levy by the irrigation board.

The Sundays River Project, as it was then known, was considered unique by virtue of the fact that almost the entire area of irrigable land was controlled by companies and not by private individuals, and that the existing irrigation works, weirs, canals etc had been constructed by the companies themselves. Lake Mentz would be the second-largest dam after the

Hartbeespoort, which was also being constructed at the time.

CONSTRUCTION OF LAKE MENTZ

Kanthack made a personal examination of the entire length of the Sundays River Poort, 'one of the most imposing bits of mountain scenery in South Africa', rejecting as impractical both provision sites which had been previously surveyed. He selected a new site a short distance upstream, in the Jansenville district.

In a report for 1917/18 Kanthack writes: "The project itself is, in my opinion, one of the soundest and most promising ones I have ever been associated with in South Africa, and paves the way for one of the most favourable closer settlement schemes which the Union is ever likely to produce. Soil, topography, climate, communications and market conditions are all of the most favourable, and I have no hesitation whatever in strongly recommending that the works should be financed by the State."

Field and preliminary work had been completed in the middle of 1917 and in March 1918 the Sundays River Irrigation Board took over direct control of the project from the Irrigation Department. Initial impoundment of the lake was scheduled for 1919.

The mass concrete-type gravity section was to have a concrete wall 1 000 feet (304,8 m) in length and 84 feet (25,6 m) high. In the wall six sluice gates, each 30 feet (9,1 m) wide and 25 feet (7,6 m) high, worked by hydraulic pressure, would regulate the flow and be capable of dealing with the biggest known flood. When full, the original dam held 5 000 million cubic feet (142 million m³) of Sundays River water.

FRAUGHT WITH DIFFICULTIES

In April 1918 RW Neumann was appointed Resident Engineer on the project, with AG Bridgman as his assistant. According to Kanthack 'the Board could certainly not have made a better choice'. Had Neumann but known what a difficult project Lake Mentz would turn out to be, however, he might have thought otherwise than to take on the project!

Firstly, the site selected for the dam was in the heart of the barren Noorsveld 40 km from the nearest station. Before any work could get underway a new road had to be constructed, around 30 km long, through mountainous country, from Wolwefontein to the site of the dam, as only 8 km of divisional road existed. At the same time a telegraph link from the works to the station was constructed. The road, telegraph line and all required buildings were completed by the end of 1918.

There was still the matter of transporting the materials from the station to the site. Carts drawn by donkeys were used to haul the total estimated 28 000 t of material to site. With no natural vegetation for the animals to feed on the wagons also had to carry sufficient food for the journey there and back.

It became necessary to place outspans at 13 km intervals with supplies of drinking water for the donkeys. At one stage during construction, 30 wagons and 500 donkeys were being continuously employed. Neumann, writing his report for 1922 stated that a team of 16 donkeys, drawing 7 000 pounds (3 175 kg), made an average ten trips a month, 30 km in each direction.

Construction was further marred by the conditions created by the raging World War. Not only was it difficult to recruit labour, but the importation of suitable plant was practically impossible. In sheer desperation obsolete and often second-hand material and machinery had to be purchased at prohibitive prices.

Recruiting ex-soldiers offered the same difficulties at Lake Mentz as it did at the Vaal Barrage site under construction around the same time in the north of the country. Not only were the men unaccustomed to the work required of them, but many suffered from relapses of malaria contracted in German South West Africa. The 1918 influenza epidemic reduced labour to a pitiful handful.

SOURCES

Cape Sundays River Settlements, Addo, Cape Province, 1918 (Author unknown)

The Rise of Conservation in South Africa – Settlers, Livestock & the Environment, 1770-1950 by William Beinart

Sundays River Valley, Its History and Settlement by Jane Meiring

Streams of Life: the Water Supply of Port Elizabeth and Uitenhage, by David Raymer

Sunday River Water User Association (www.sundaysriverwater.co.za)

Department of Water & Environmental Affairs

Thanks to Addo Elephant National Park and eWISA for photographs

Matters were made worse by an outbreak of Bubonic plague and protracted drought, which cut down water supplies for domestic as well as construction purposes. Neumann estimated that the demand for the works as well as for domestic use was often as much as 100 000 gallons (454,6 kℓ) a day. In the end, the dam was only completed in 1922. The most ironic part of the dam's completion was that it was followed



Addo Elephant National Park

Darlington Dam now forms part of the Addo Elephant National Park.

by a drought, and the dam only filled in 1928.

SETTLEMENT AND SILTATION

This delay in completion of Lake Mentz proved the death knell in the dreams of many settlers who invested too early in the scheme. Kanthack had warned prospective British settlers that they needed £2 000 in capital and enough money to tide them over for four years. Even this proved optimistic. Early settlers survived by farming chickens and lucerne; a number had to live and work in Port Elizabeth and Uitenhage.

The Cape Sundays River Settlement Company ran into financial difficulty and was eventually liquidated in 1923. Mounting financial demands on the Irrigation Department led the State to


take over the scheme in 1925. By 1934 all outstanding monies owed by the irrigators to the State, totalling some £2 350 000 had to be written off.

Kanthack had anticipated that the dam would experience a problem with siltation. The solution he proposed was the provision of a number of large scouring sluices with their sills 25 feet (7,6 m) below full supply. Despite this measure, excessive siltation resulted in the dam wall having to be raised in 1935 by 1,5 m to restore its original capacity. The wall had to be raised again in 1951, this time by 5,8 m.

After the second raising of the dam the Irrigation Board embarked on what was termed the Betterment Programme, which entailed the concrete lining of some 70 km of main canal and some 155 km of subsidiary distribution canals. This project was completed in 1962.

THE SUNDAYS RIVER VALLEY TODAY

To further secure water supply to the valley, water from the Orange River Project was linked to Lake Mentz in 1978 by a temporary pumping arrangement. Following construction of the De Mistkraal Weir in 1987 the supply system from Gariep Dam to Darlington Dam was completed.

Lake Mentz was renamed Darlington Dam in 1995 after the settlement which was overrun when the dam was created. The dam became part of the Addo Elephant National Park in 2000, with further consolidation of properties in 2001. At the time of writing, land on the western side of the dam was still being consolidated. 



Addo Elephant National Park

Darlington Dam, originally known as Lake Mentz, was once the second-biggest dam in South Africa (after Hartbeespoort Dam).



water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA



PUBLIC NOTICE

INVITATION TO SUBMIT WRITTEN COMMENTS ON PROPOSED GENERAL AUTHORISATIONS FOR SECTION 21(c) AND (i) WATER USES OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998)

The National Water Act, 1998 (Act No. 36 of 1998)[NWA] requires that activities entailing the impeding and diverting of flow of water in a watercourse and altering of the bed, banks and characteristics of a watercourse must be authorised. Such activities are regarded as section 21(c) and (i) water uses and are permitted through the continuation of an existing lawful use, general authorisation or a licence.

The Director-General: Water Affairs and Forestry (DWAF) intends to generally authorise section 21(c) and (i) water uses of the NWA subject to a set of conditions and precautionary practices including sustainable use and the protection of resource quality. DWAF proposes two general authorisations (GAs) in relation to these water uses - a Wetland Rehabilitation GA; and a replacement GA for GAs 1 and 2 to the Schedule of Government Gazette Notice No. 398, dated 26 March 2004, as published in Government Gazette No. 26187.

The proposed GAs were published in Government Gazette No. 32212 in Notice 541 and 542 respectively on **15 May 2009** for public review and DWAF is inviting comments on the published GAs by 15 July 2009. The documents are available electronically on the Department's website, see <http://www.dwaf.gov.za/documents/>.

Comments must be submitted to the Chief Director: Water Use,
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PRETORIA, 0001; Fax: (012) 336 6608;
email: duplessisv@dwaf.gov.za,
marked for the attention of Ms Valerie Du Plessis – Sub Directorate
Environment and Recreation.

