



Letters to the Editor

Water in war and peace

Following Deon Visser's excellent article on the SA Engineer Corps activities in Kenya (South African Military Water Diviners in Kenya during World War II, *the Water Wheel* September/October 2011) and your request for other photos and information,

I share some from my collection.

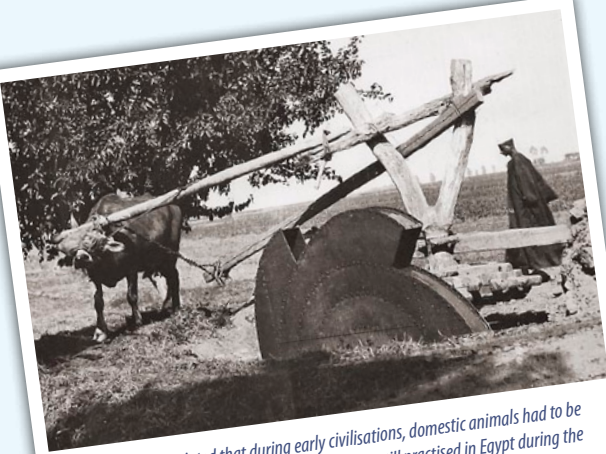
My late father served with the South African forces in Abyssinia and North Africa from the beginning of World War II through to June 1942 when the South African 2nd Infantry Division was defeated at Tobruk. He was taken prisoner of war.

I was a university student at the time. I joined the South African Engineer Corps two months after he was captured. I was posted to the 11th Field Company of the South African Engineer Corps in Tripoli, and served with them in North Africa and Italy for the rest of the war. Together, the two of us served our country on active

service throughout the war.

The North African Campaign commenced with the invasion of Egypt by Italian forces in June 1940 and ended with the surrender of the remnants of the Axis forces (German and Italian troops) in Tunisia three years later, in May 1943.

Prof Will Alexander



It is not often appreciated that during early civilisations, domestic animals had to be used for drawing and transporting water. This was still practised in Egypt during the war. In this photograph a blindfolded cow is used to pump water from a canal into an irrigation furrow.



Armies had to store supplies of water at strategic places ahead of battles. The allies stored the water in four-gallon cans. This supply was almost covered by subsequent sandstorms.



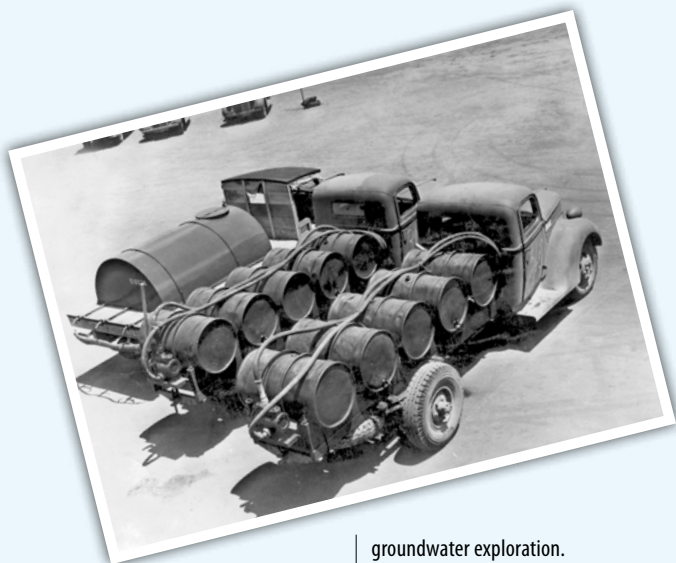
A camel-drawn water cart.



In Roman times farming was practised along the North African coastal areas. Water was stored in underground cisterns carved out of the soft limestone rock. During the war these cisterns were used by both sides as shelters from enemy bombs and shells as the battles raged backwards and forwards across Libya. The only access to the cisterns was through a wide hole in the solid roof of the cistern. This Roman cistern was converted into brigade headquarters. The large entrance was constructed by wartime engineers.



At meal times in the desert small water tankers were always close at hand. One of them can be seen at the left of this photograph. During the war soldiers on both sides always carried steel water bottles strapped to their belts when in action.



Term 'water diviners' demeaning to skill of earth scientists

The contribution by Deon Visser (South African Military Water Diviners in Kenya during World War II, *the Water Wheel* September/October 2011) deals with a very interesting aspect of South African earth science.

However, the title is very far from the mark. I get the impression that the author and/or the editor are not aware of the sensitivities around water divining and scientific groundwater exploration. These South African soldiers were not water diviners; they were serious, well-qualified and experienced earth scientists, as the author also indicates.

The history of this group of scientists is the following. In 1934 the first geophysicists to join the Geological Survey staff were DJ Simpson and GL Paver. Others were to follow soon and this team embarked on a systematic programme to evaluate geophysical methods and applications such as the siting of boreholes. The groundwater applications were performed in collaboration with the Department of Irrigation and the South-African Railways. With the development of appropriate electrical and electromagnetic geophysical methods the siting of water boreholes became more technically sophisticated. During the latter years of the 1930s the Geological Survey built a strong team of geologists trained in geophysical work for the purpose of

groundwater exploration.

In 1937, Dr HF Frommurze, the head of the groundwater and geophysics group in the Geological Survey published a memoir on the water-bearing properties of the more important geological formations in South Africa. He discussed the results of more than 22 000 water boreholes.

At the outbreak of World War II, the director of the Geological Survey, Dr SH Haughton, assisted in the formation of the 42nd Geological Section of the South African Engineering Corps, manned initially by Dr Frommurze, Dr Simpson and, then still, Mr Paver. The section had the primary objective of locating water supplies for the troops. Electrical resistivity methods were mostly used. These geologists/geophysicists saw service in the East- and North-African as well as Middle Eastern Campaigns and on their return had gained a considerable amount of experience in the problems of underground water supply in those areas. It is also known that Drs Frommurze and Paver held the rank of Major during the war.

In 1944, the anniversary address of the President of the Geological Society of South Africa (GSSA) was published in which Dr Frommurze (President of the GSSA in 1942) addressed the topic: Scientific methods of water finding. In this address he dealt amongst other topics with diviners and divining as well as geophysics.

After the war Dr Paver published several papers on their experiences in *Water and Water Engineering*.

Dr DJ Simpson in his 1960 Presidential Address to the GSSA entitled 'Water and Warfare' also described their exploits.

In 1948, at the General Assembly of IUGG in Oslo, Paver commented: "The proper scientific investigation of underground water supply should embrace the correlation and reconciliation of all available and observable hydrological, geological and geophysical data. The geophysical work should rest on a sound geological and hydrological foundation and be regarded as an extension of the collection of attainable data and not looked upon as a separate investigation. No interpretation of observed results, however feasible mathematically or physically, are (sic) acceptable if they contradict the established facts of hydrology and geology. The initial application and final interpretation of geophysical data demands a thorough knowledge of geology and an understanding of the hydrological conditions controlling the occurrence of underground water in the various rock types." This displays a sound scientific approach that is still valid today.

During the late 1930s these men were amongst the best people in the country (if not the world) to carry out the job of scientific groundwater exploration for the military campaigns in Eastern- and Northern Africa and the Middle East. They were definitely not your run-of-the-mill water diviners!

Dr Johan de Beer,
geophysicist, Stellenbosch
(Bibliography available)

Lt-Col Visser responds: "I was quite unaware of the sensitivities around the term 'water diviners'. In retrospect, perhaps it should have been used in quotation marks as it was a nickname mentioned in one of my sources. Neil Orpen writes: "One of the most highly specialised of all units in Kenya was what Colonel H Sugden, Brigadier Minnis' Chief Staff Officer, aptly called South Africa's "water divining unit", officially designated 42nd Geological Survey Section, SAEC (Major HF Frommurze): (N Orpen, South African Forces World War II, I: East African and Abyssinian Campaigns (Purnell, Cape Town and Johannesburg, 1979), p.35.) The article

in the Water Wheel was a mere summary of a longer paper on the subject. In the longer text it is written: 'The Union of South Africa, as was the case with Southern Rhodesia (Zimbabwe) and most of the other colonial administrations, employed both geological and geophysical methods to select sites for boreholes as recent deposits often obscured surface indicators of underground water. By 1940, the Geological Survey Section of the South African Mines Department and the Boring Branch of the Irrigation Department had been working together very closely for 35 years to increase the success rate of the Union's water boring efforts, which led to considerable advances in the scientific methods of underground water location, particularly electrical resistivity and magnetometric methods of surveying. Much successful experimenting with these methods had been done in low rainfall areas in the Union, including the Kalahari Desert where conditions are comparable with those in arid and semi-arid regions in East Africa and elsewhere in the world.' What I am particularly interested in is to determine whether any of these water sources (boreholes, dams etc.) established by the military during the war are still in use today."

(Response has been edited)

Gremlins strike again

Your article, 'Domestic water filters under scrutiny in new project' in the September/October 2011 issue of *the Water Wheel* makes very interesting reading. However, the download address given for the electronic brochure, *To Buy a Water Filter or Not to Buy a Water Filter*, is incorrect. The correct address is: www.wrc.org.za/Knowledge%20Hub%20Documents/Research%20Documents/water%20filter%20brochure.pdf

Arend Hoogervorst, Kloof

Praise for the Water Wheel

I have been receiving *the Water Wheel* for quite some time and I must congratulate you on the excellent quality of the magazine. I rate it as the best popular science magazine in South Africa.

Irene de Moor, Grahamstown