



The forgotten work of the Inter-Colonial Irrigation Commission

Courtesy of Adele Low

If it were not for the brave action of a group of miscellaneous men more than a century ago, Pretoria might not have the privilege of its Fountain water resources, still in use today. Article by Adele Louw.

Several interesting articles on the history of the Pretoria Fountains have recently appeared in *the Water Wheel*. Few people, however, know about an incident during which the future of these fountains were threatened and saved, in the nick of time, by a special commission whose findings led to significant changes in the approach to dolomitic groundwater and Water Law that ended up being applied for almost a century and which had a significant repercussions on mining in the Far West Rand.

On 16 January 1905 an Inter-Colonial Irrigation Commission was established by the then Governor of the Transvaal. The commission was led by a Judge of the Transvaal Supreme Court, JW Wessels. Other members of the Commission were WL Strange, the Director of Irrigation for the Transvaal, J Rissik, the former Surveyor-General to the South African Republic, JA Nesor, an Attorney-at-law and the Mayor of Klerksdorp, Capt. BHO Armstrong, RE Director of Relief Works ORC, ER Grobler, a landowner and farmer

who was also the former Vice-President of the Volksraad in the Orange Free State and CDH Braine, Executive Engineer of the Transvaal Irrigation Department, who was the Commission's Secretary.

The Commission was given various tasks, one of which was to look into the precautions necessary in dealing with subterranean water, especially water that flowed in areas situated in the dolomite formations. This task had been mooted as a priority to prevent, as far as possible, the diversion of such water from public streams and fountains to the detriment of the public and, to avoid raising concern, the target area was from the Bank spring to Gerhardminnebron.

This fear was not unfounded as the owners of land where there were underground channels feeding large springs could, at the time, consider the groundwater as 'private' and use their position to 'blackmail' downstream users. The Commission noted that Pretoria's water supply was at risk if "someone situated above the fountains (a) may open up the channels and reservoirs which supply the Aapies River springs with water, (b) and that by erecting suitable pumps they may so exhaust the supply as to deprive Pretoria and the riparian owners of water."

The Commission obtained full oral and written evidence and also visited areas where the impact of

their findings could lead to improved conditions. Various places, mostly in the Pretoria area and what is now the Far West Rand, were visited.

The Commission relied on the evidence of 40 witnesses to draw up their findings. It was noted that a large pumping station at Zuurbekom, where about two million gallons of water were pumped daily to supply Johannesburg with water, was the only example in South Africa, at the time, where the effect of pumping water from the dolomites could be seen on fountains and on neighbouring streams. The commissioners also found that this pumping station had most probably led to the drying up of the Klip River, and that the rapid dropping of the water at the Klip River's eye synchronised with the pumping at Zuurbekom.

LEGISLATION

At the time the Commission was appointed, legislation which dealt with subterranean water was based on Civil Law. The English Common Law was used, and adopted the same principles as the Civil Law. This law, when applied, meant that the owner of a piece of land was entitled to use everything found upon that land, everything about that land and everything beneath the land as far as he could reach it. Accordingly, an owner could also use all the water on the land, whether it was found above, or below ground, as long as it was not used in such a way that it became a nuisance to others.

If, however, the water flowed from a higher level over an individual's property in a well-defined

"Owners of land where there were underground channels feeding large springs could...use their position to 'blackmail' downstream users."

Left: The area near what is now known as Carletonville where the Wonderfontein Cave is situated.

Right: Water flowing from the Lower Fountain of Pretoria, with the historic pumphouse in the background. This dolomitic resource has faithfully supplied water to the centre of Pretoria for over 150 years.



Lani van Vuuren



Courtesy of the FWRDWA

The entrance to the Wonderfontein Cave, where the Commission did much of their investigations.

channel, and was of sufficient volume that it could be used by several land owners, then the land owner could only use it in such a way that he did not interfere with the use

of neighbours who were situated on a lower level. In this case, the landowner had no ownership of the water that flowed over his ground, although he had the right to take a part of it for his own use.

The Act differentiated between 'private' and 'public' water. The question of whether or not water in geologic dolomitic formations flowed in defined channels was thus the definitive factor in determining whether the upstream use of water was legal, or not.

Up to the time of the appointment of the Inter-Colonial Commission, no one was sure of the exact manner in which water flowed through the dolomites, or if the water flowed at all.

During their investigation, the Commissioners visited the Wonderfontein Valley between Bank Station and Frederikstad, inspecting the upper and lower Wonderfontein eyes and the springs at Turffontein and Gerhardminnebron. They also explored the Wonderfontein and Welverdiend caves, in which they

followed, for a considerable distance, substantial streams of water running through large caverns and passages.

In addition, the group considered the effect of pumping from dolomite and its probable consequences. They argued that, according to the evidence of technical witnesses, there is no limit to the amount of water that can be raised by pumps to the surface in a dolomitic area.

PUMPING AT ZUURBEKOM

During their visit to the Klip River, the members of the Commission found the practical consequences of the effect of heavy pumping on the dolomites. Large volume pumping commenced in 1892, before the Rand Water Board, established in 1904, was instructed by the Crown Agencies for the Colonies that sustainable water had to be delivered to Johannesburg and the townships, as well as the mining industries in the Rand area.

The Commission also found that there is a considerable difference between pumping from the dolomite formation and from formations where water permeates the mass and does not flow in channels. Where water is found in the latter state, uniformly distributed in the ground, pumping is not so rapid and exhausting a process as when water is pumped from the dolomites.

This meant that someone pumping water from the dolomites, or who dug a well in the correct place could stop the flow of an eye as well as the stream, or river being fed by it.

PRETORIA'S WATER SUPPLY UNDER THREAT

The appointment of the Inter-Colonial Commission was a direct response to the threat posed by those who sought to deplete the dolomites feeding the Fountains and hold Pretoria to ransom. In fact, Pretoria was totally dependent on the dolomitic water until the early 1930s when the city was connected to the



The Sammy Marks Fountain originally stood in Church Square serving dolomitic water to the town's residents.

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Rand Water Board supply.

One of the witnesses interviewed by the Commission, a representative of the Transvaal Agricultural Union, Mr FT Nicholson, told the Commission that he believed that someone was making illegal use of the water and that he also believed that the water was being wasted. Nicholson even added that someone threatened in his presence to put down a bore-hole and take away the water supply of Pretoria.

The Commission then interviewed the alleged perpetrators, Stephanus Petrus Erasmus and his brother, Daniel Jacobus Elartus Erasmus, who respectively stayed on the farm *Rietvlei* and on the adjacent farm *Garstfontein*, situated just south-west of Pretoria. Another farm, owned by Erasmus (Sr), *Rietfontein*, contained the springs of the Pienaars River.

The Commission also spoke to the son of Stephanus Petrus Erasmus, Daniel Jacobus Elartus Erasmus (Jr). The hearing during which they were questioned took place in the Palace of Justice in Pretoria on 11 April, 1905.

Although the Erasmuses argued vehemently that the legislation regulating such water use should not be changed, the Commission decided that the water in the dolomites had to be protected and that no individuals should be allowed to endanger the water supply of towns by excessive pumping from the dolomites.

The Commission recommended that while it may be to the public's advantage to allow the owner to sell water to towns, or persons, or bodies requiring large supplies, legislative

sanction must first be obtained and that the Government should have the power of applying to the Court to prevent persons from pumping where this interferes with the water supply of a town, or populated area, whether the Government is a riparian owner, or not. In such a case, if the Court grants a perpetual interdict, the owner would be entitled to compensation on the basis of the advantage which was the actual use of the water.

The Commission, however, also recommended that farm owners must be allowed to freely pump subterranean water for their own use, whether for watering cattle, or irrigation and that mine owners should not be restricted from mining because simply by doing so, they may strike subterranean water.

Traffic in underground water should also be prohibited, thus land owners should not be allowed to sell, or barter underground water which he does not require for his own use.

Other recommendations were that:

- The Government should have large powers of expropriation where the pumping, or the deflection, of the underground water interferes with the water supply of a town, or populated area, subject to the general rule of adequate compensation;
- It is unnecessary to prove that water in the dolomite formation flows in channels;

- This be accepted as prima facie by the courts, and
- If the judge deems that the facts establish a connection between the pumping and the diminution of the water in a stream, he could prevent the pumping to the extent he thinks fit.

IMPACT ON LEGISLATION

As a result of this investigation, the Commission recommended that water contained in dolomitic geologic formations should be controlled by law. The first legislation which set out to control the use of dolomitic water was the Transvaal Act (Act 27 of 1908). According to Article 51 of this Act, “All subterranean water in the dolomite formation shall, until the contrary is proved, be presumed in Courts of Law and other places to flow in defined channels,” which by Roman and English Law considered such flows to be ‘public water’.

This Act led to the Irrigation and Conservation of Waters Act of 1912 (Act 8 of 1912), which stipulated that until proven otherwise, all subterranean water in dolomites must be deemed by the Courts to flow in ‘known and defined channels’ and that farm owners were not allowed, without sanction of Parliament, to sell, give, or dispose of underground water. □

The collection chamber protecting Pretoria's Lower Fountain.



Gerrit Burger