

REPORT ON UNDERGROUND WATER ON THE
PROPERTY OF MR. A.H. COOPER, EMITA.
FLINDERS ISLAND.

In order to provide the necessary water supply, required for use in his milking shed, Mr. Cooper has a shallow well sunk close by.

The strata passed through consisted of alternating beds of limestone and clay and finally a bed of sand was encountered. The bed of sand was found troublesome to sink through as the sand ran freely into the well. This was partly solved by building a concrete lining for the well and building sections on the top as sinking progressed and the casing was lowered. Some little difficulty was experienced which could probably be overcome by using a cutting shoe on the bottom of the casing; weighting the top of the casing when necessary; and keeping the casing in correct vertical alignment in the well.

A sufficient supply was developed and its only drawback was that at times it had an objectionable smell. Though the smell was not apparent at the time of the writer's visit it is probably due to the presence of hydrogen sulphide gas in the water. This gas appears to be present in every other underground water with which the writer had experience on Flinders Island. The waters from the wells on the West Coast do not, however, contain any great amount of this gas. Further in a wide, shallow and open well, it is possible for water that has stood in it for some time not to smell as the hydrogen sulphide might have escaped into the atmosphere. This would also explain the absence of hydrogen sulphide in the analyses.

The precautions to be adopted with such waters are:-

- (1) To avoid the use of metal work as much as possible by using concrete pipes, tanks etc. All tanks etc. should be coated with tar or other material to prevent contact with the metal. As regards the pump, one constructed of acid, resisting metal should be used.
- (2) To allow the water to run over cascades as soon as it is pumped from the well. This will give the gas every opportunity of escaping from solution and passing into the atmosphere. These precautions apply particularly when the water is used for watering stock.

As regards a better supply at depth very little can be said. Further supplies would probably be obtained, but the quality cannot be foretold. It would be better in the first place to test the present supply using the above precautions.

The analysis shows that the dissolved mineral substances consist of sodium, calcium and magnesium in the form of chloride, carbonate and sulphate. These

represent principally the following salts:-
sodium chloride (common salt), calcium carbonate,
and epsom salt (magnesium sulphate). The water
judged by the nature and amount of dissolved mineral
substances should be good quality for sheep, grazing
cattle and horses and of fair quality for working
horses and milking cows.

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10/2/31.

ANALYSIS OF WELL WATER.

(Expressed as radicles in parts per million).

Total Solids	1168.0
Silica	12.0
Iron	1.4
Aluminium	3.2
Calcium	104.3
Magnesium	30.5
Sodium	252.6
Chloride	387.2
Sulphate	74.0
Carbonate	187.6
Hydrogen Sulphide	NIL
Volatile Solids	112.0