THE PELTON WHEELS OF CUNNAMULLA

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by
IAN ITTER
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INTRODUCTION

CHAPTER 1

It was during reseach on fred Wolseley's Elmina Station that I came across the following letter written in 1910 regarding the origins of the Pelton Wheel in the Cunnamulla region. The letter registered with me because at that time I had been collecting stories for an excellent, but alas, now defunct publication called *Ringers Review*. This magazine was primarily aimed at collectors of shearing machine memorabilia and enthusiests of the history of this once huge industry.

Upon enquiring about these wheels with many people, both in the shearing enthusiast's camp and around the Cunnamulla region, I was to learn how little the knowledge about them had come down to this modern era, and more to the point how little, people understood of the huge economic impact they had created.

It was common knowledge how the Thargomindah Hydro power plant had been used to power the town, especially highlighting the creation of electricity in outback regions, but not much about the engine that had been used to allow this to happen.

Following close behind this revelation, I had received some information through a friend Bernie Walker, who had a shearing mate from Hughenden who told him of the time he had visited a property near Cunnamulla that had a shearing shed with twelve Wolseley machines which were driven by a Pelton wheel. The wheel, he stated had also driven a sawmill and supplied lighting to the homestead. David could not remember the name of the property.

This information, once received, of course demanded that a trip be made to view the remnants. The property was located with the help of the Cunnamulla Stock squad who new every remote property because of the nature of their work and a trip was made in May 2011 which resulted in meeting the managers of *Noorama Station,* Neville and Marie Kelly, lovely people who in turn directed us to the the property we now knew as Warambah.

SHEARING BY BORE WATER PRESSURE

To the Editor.

Sir, - In your August issue I notice that Mr. Henderson has supplied you with a list of stations running their shearing machines with the Pelton wheel, driven by the flow from artesian bores.

He has omitted to mention ***Boorara*** and ***Elmina,*** the two first stations in Southern Queensland to practically demonstrate the value of this power when applied to the Pelton wheel.

Mr. Patterson, of ***Boorara***, installed his plant some years in advance of any other owner in Southern Queensland. ***Claverton*** Station was the next to experiment an abortive attempt which only resulted pelting the wheel from its pedestal in disgust.

Fletcher Bros. ***(Elmina and Ularunda)*** came next. They first of all wrote to Mr. Patterson, and receiving a favourable report from him, decided to erect a plant, and they procured a Pelton wheel from America.

This installation was a complete success, driving sixteen Wolseley machines in beautiful style.

To Fletcher Bros. alone is due the credit of introducing the Pelton wheel on the Warrego and Nebine.

Mr. Cameron. the manager of ***Murweh***. made a special trip to ***Elmina*** to inspect the plant there during shearing prior to erecting his own plant at ***Murweh***. The owners of ***Bendena*** also paid a visit of inspection to ***Elmina.***-Yours, &c., .

E. H. FLETCHER.
Vermont,
Amby, (near Mitchell)
Queensland,
15th September, 1910.

The motivating letter

THE PELTON WHEEL

LESTER ALLAN PELTON
(1829–1908)

The Pelton wheel was an invention of an American Lester Allan Pelton. Lester Pelton is now considered to be one of the founding fathers of hydro-electric power.

He claimed patent rights eary in the 1850’s

The **Pelton wheel** is among the most efficient types of water turbines. It was invented by American inventor Lester Allan Pelton in the 1870s. He is considered one of the fathers of hydroelectric power. The Pelton wheel extracts energy from the impulse momentum of moving water uder pressure, as opposed to its weight like traditional overshot water wheels.

Although many variations of impulse turbines existed prior to Pelton's design, they were less efficient than his, the water leaving these wheels typically still had high speed, and carried away much of the energy. Pelton's paddle geometry was designed so that when the rim runs at ½ the speed of the water jet, the water leaves the wheel with very little speed, extracting almost all of its energy, and allowing for a very efficient turbine.

APPLICATION OF WATER TO MECHANICAL POWER

Although water has been used for generating power from the earliest times, it is only within comparatively recent years that it has been availed .of to any considerable extent. Even in the present day countless millions of units of natural force are left unused and being wasted. Streams in hills, waterfalls and artesian bores are in a few cases harnessed and their power used for driving machinery of one kind or another, but, compared with those not touched, they are very much in the minority.

The potential power may be transferred from water to machinery in various was. Such antiquated methods as huge water wheels are still used, but for the purpose of the present work, only hydraulic turbines and Pelton wheels need be described.

The hydraulic turbine is chiefly used in cases where the head of water is small, It is constructed and works on much the same principle as the steam turbine. The force of water plays on vanes set at such an angle on a shaft that the shaft revolves at a high speed, and generates energy. Where the power to be utilised is derived from a high fall, or from high pressure from artesian flows. the use of turbines is rendered impossible, because of the enormous stresses which would be set. up in the machinery, and the high speed which would be developed. On such falls, pressures, a simpler form of engine, such as a Pelton wheel is desirable.

The accompanying half-tones give a good idea of the construction of a Pelton wheel, The engine consists essentially of a stout wheel upon the periphery of which a number of specially shaped buckets or vanes are secured. A jet of water is directed from a nozzle against the bottom vanes, which causes the wheel to revolve. The energy developed is conveyed to the machinery through the shaft.

Pressure is the real motive power, and is caused by gravitation. It is the same law of gravitation which causes water to rise in a bore or fall from a height, and the application to the generating engine in both cases is the same. Nozzles are used to direct and increase the pressure.

As water generally has a commercial value, the most. advantageous and profitable use of it should be considered In this relation not only the wheel, but the pipe which conducts the motive power, has an important bearing on the result.

The 1088 of head by friction in pipes is considerable, and must be taken into account where water has to run any distance. Head in this ,;,; .

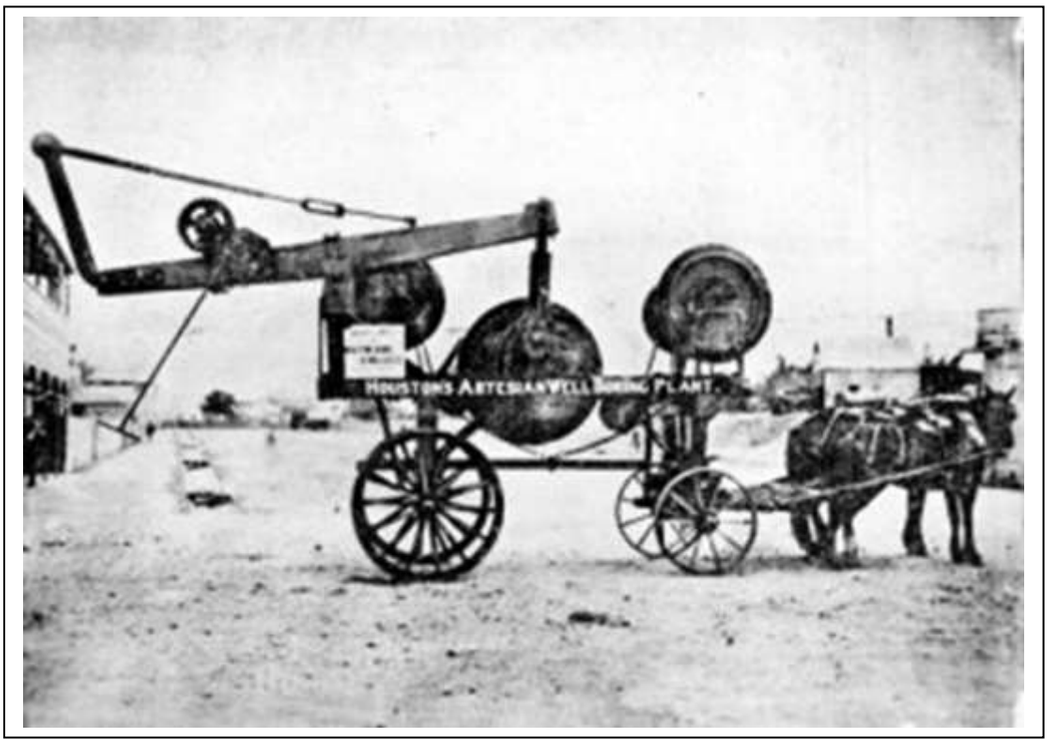
The following will show the effectiveness of a three foot wheel:-

Head	Flow of water in Cubic Feet. per Minute.	Horsepower.
20	46.93	1.50
60	81.25	7.84

100 104.88 16.84

These powers are subject to a slight deduction dependent upon friction in supply pipe, bends, etc. One of the highest recorded falls under which Pelton wheels are working is at Comstock, in Nevada USA.

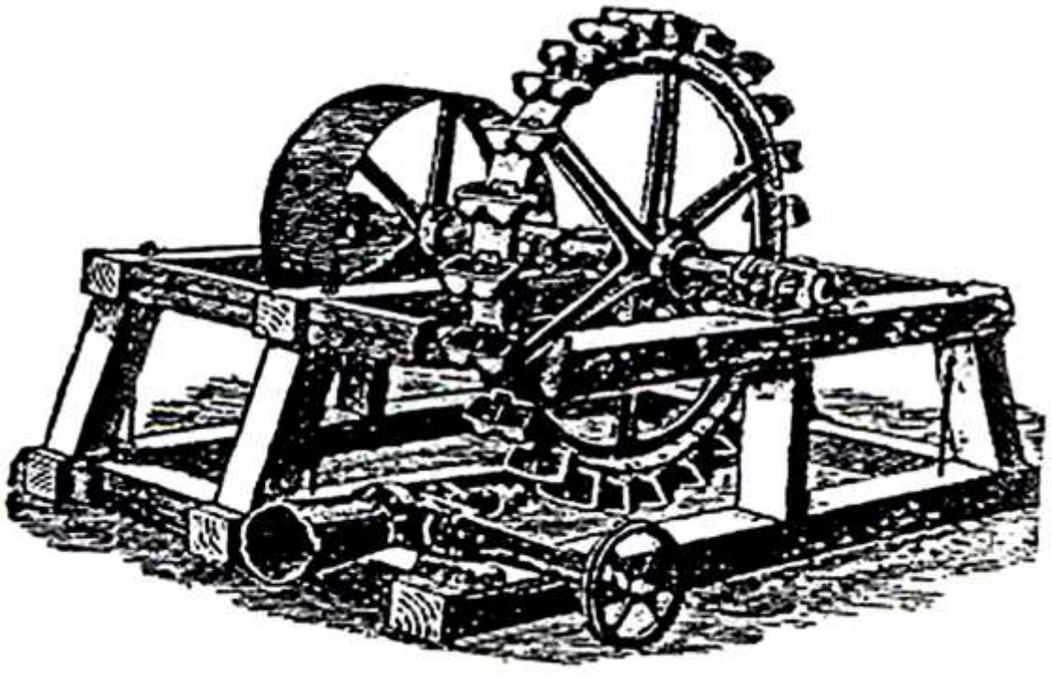
In this case six large Pelton wheels are running under a head of 1680 ft., developing power for electrical transmission, the efficiency of the wheels being over 80 per cent. The advantages of such high falls lie in the small quantities of water requires. The pressures, which are developed in the head pipes, are enormously high. The head at Comstock develops a statical pressure (i.e., with the



valve partially closed) exceeding 900 lbs. per square inch. and from a nozzle not more than ½ in diameter, driving a 2 ft. Pelton wheel at 1150 revolutions per minute. about 100 h.p. is obtained.

The flow over the casing of artesian bores varies considerably, and so, of course, will the power which may be generated there from. That a comparatively low pressure may be successfully used on a Pelton wheel. is show by the following concrete case:- A station in western Queensland has a bore with a. flow of 1 t million gallons per diem. This gives a pressure of 25 lb. to the square inch through a 2 inch nozzle, and generates sufficient power, per Pelton wheel, to drive a plant of six shearing machines and light the homestead with electricity. In other cases, where more pressure is obtained, as many as 50 shearing machines are worked by a Pelton wheel.

If the pressure is greatly in excess of the power needed, it may be found expedient to have a T lead at the bore head, with an extra valve on the end opposite to that leading to the wheel, This will enable the pressure to be regulated. Of course, it is quite obvious that bore water suffers in no way through being used for power, and can be conducted by channels from the wheel into the usual bore drains.



An early version of a water turbine
(Pastoralists Review September, 1910 article)

THE PASTORALISTS REVIEW. AUG. 15, 1910. Page 638

Artesian Water Supply.-Mechanical Power Derivable from Artesian Bores.
By W. GIBBONS Cox, C.E.
11.
THE PELTON WHEEL.

Where power is to be derived from an extremely high fall, or from pressure from artesian flows, the use of ordinary impulse turbines, and of reaction turbines, is rendered impossible because of the enormous stresses which would, be set up in the machinery, the other because of the prohibitively high speed which would be developed. On such falls or pressure the simplest construction of engine is desirable, and one in which a reasonably high speed is obtained without undue strains on the working parts. Such a form of engine is found in the Pelton wheel, if this be intelligently designed.

A general view of one form of this engine, which has found exclusive use in the mountainous districts of North and South America, and which is now being used in connection with bore outflows in Queensland, is shown in the illustration. The engine consists essentially of a stout wheel, upon the periphery of which a number of specially-shaped, buckets or vanes are secured, with one or more jets of water directed from nozzles almost, or quite, tangentially against the lowermost vanes. The wheel is rotated by the impulse of the rapidly moving jets, and the power developed is conveyed through the shaft.

The action. of the vane, shown in the illustration, is to divide the jet into two equal parts, each of which glides over the curved surface of the vane, and is deflected backward until it is discharged from the wheel with practically no velocity.

The power, being free from working expenses in its production, should ensure a large use of it in the near future. It is very largely used in America for working sheep-shearing machines and for electric lighting purposes. At the city of Aberdeen it was difficult, owing to the level character of the surface, to get drainage for a sewerage system. By the advice of B. Williams, civil engineer, of Chicago, the sewerage was conducted to the outskirts of the city into a deep deposit chamber. An artesian well was then sunk in the pump-house.

From this the water is conducted, under its natural pressure, to the turbine pumps, which raise the sewerage to a height of 23 ft. at a rate of over 2,500,000 gallons per diem. All this, by the direct pressure of an artesian well that cost £680, was sunk in less than ninety days, works automatically, requires little attendance, no special building, needs no repairs, and costs nothing to maintain. The power is also being utilised in South Dakota for working flour mills. The highly successful results in America are due, in all probability to perfect construction of the bore, or to a greater inflow of flood water into the water-bearing rocks.

QUEENSLAND RESULTS.

The following is from a letter of Mr. Henderson, Chief Engineer for Water Supply, Queensland. It is in answer to a request for information made by me to Major A. J. Boyd, editor of the Queensland "Agricultural Journal," a former patron of the writer:-

Brisbane, 3rd May, 1910.

"I beg to state that so far as I am aware Pelton wheels are successfully employed at the following bores:-

"1. At Thargomindah, to drive an electric lighting plant installation, 1898.
"2. At Murweh Station, for working twenty stands of shearing machines. (See 'Pastoralists' Review' for Jan. 910.)
"3. The Rand bore drives a small electric plant for lighting the station.
"4. At Llanheidol Station a bore drives an electric woo. drier.
"5. At Hamlet Downs, to drive a wooden waterwheel for actuating a chaff cutter.

" When last measured the static pressure at the Thargomindah bore was 270 lbs. per square inch when the valve was fully closed, but I am sorry that I cannot give the horse. power, as the necessary observations have not been recorded, by reason of the bore being the property of the local Government authority." Mr. Henderson also says in his letter: "Of course the best results are usually obtained with the valve partially open. Only exceptionally large flows are likely to register an appreciable pressure when the valve is fully open."

In January last, Mr. R. Macansh, of Murweh Station. wrote as follows in *"The Pastora1ists' Review"*:-

"This unique power has now been used for three successive seasons; this season 30.000 sheep were shorn, and there has never been a single hitch. The bore is down 1792 ft.; flow, 1.000.000 gallons. Pressure, out of a 2-in. nozzle, is about 38 Lbs. and is as great, now as ever it was. Wheel, 2 ft. 6 in. in diameter, 9 inches wide, driven at 327 revolutions per minute, and develops equivalent to 18 h.p. The pressure gauge reads 36 lbs. to 38 lbs., with only two-thirds of the flow passing through the wheel. Twenty stands of shearing machines are driven, with sufficient pressure, as estimated, to drive ten more. The water is also laid on to the sheds, huts. and yards; indeed the variety of uses to which it is put suggests many possibilities to pastoralists situated in the artesian area."

FLOWS AND PRESSURE

Recent diminution of the flows and pressures of bores in the Coonamble district of New South Wales has led to a serious agitation in pastoral circles there, the results being mainly attributed to deterioration by corrosion of the casing. Upon this matter a departmental report by Mr. Wade, Chief Engineer for Irrigation and Drainage, ordered by the Minister for Public Works, states that the area from which corrosion of artesian casing has been reported "is confined to a zone in the Coonamble district, which is small compared with the whole artesian area within the State of New South Wales," and that the question of the causes of the corrosion and the most suitable remedies is receiving, by order of the Minister, the unremitting ,attention of the Chief Engineer and other officials under him.

In the May issue of the" Agricultural Gazette" the Public Works Department gives the result of the latest measurements of pressures of seven New South Wales bores, the horse-power-80 per cent. efficiency-being given, viz" severally, 0.8, 5.0, 7.5, 0.6, and Oreel bore 15.8. These pressures are much below those of the seven bores in Queensland before given:- .

Max. Pressure per sq. in.	**Flow per Day Gallons**.

Oreel Bore, N.S.W. ...	150lbs.	1,053.735.	½-flow gives 15.8h.p.
Murweh Bore, Queensland	38 Lbs.	1.000,000	½-flow gives 19.00 h.p.

"Moreover" says the "Gazette," "the Works Department points out that the maximum horse-power is only available when the discharge of a bore is shut off to about half its normal flow. This would mean the sacrifice of half the daily flow to obtain the results shown in the table. Reliable measurements also indicate that both the flow and the pressure of the bores named are gradually decreasing. It seems therefore probable that if the manufacture of nitric acid from the atmosphere is to be utilised to obtain a corrective to the alkali in the bore waters, some other source of power than the pressure of the bores will be required."

The inference from this, the writer thinks, is unavoidab1e that the pressures from bores are not adapted for power purposes.

Without endeavoring to reconci1e the above differences, it wil1, the writer thinks, suffice to recall attention to the work done at Murweh and other stations in Queensland, . Murweh giving 38 1bs. pressure, with a two thirds flow and 18 h.p. The Public Works Department state that the bore pressures in New South Wales are not sufficient for power purposes, If that be 80.. the writer's answer is that the position is not hopeless if the right remedial measures be taken. Means should be taken to prevent any pressure water escaping by finding its passage under the shoe and up inside the casing into dry or drier strata. The writer has this matter under-consideration, and is working at the practica1 problems. The other remedial matter is an increased intake of the artesian water as pointed out hereafter.

DECREASE OF FLOWS

As regards decrease of flows:-Many reasons have been advanced for this, defective or inferior casing; corrosion, 1eading to escape of pressure water into upper drier strata, the corrosion being due, according to the departmental chemists, to galvanic action accelerated by the temperature of the water, as in the exceptiona1 case of the bores in the Coonamb1e district; accumu1ation of sand rising in the casing; tendency when the flow is stopped by closing the va1ve for the pressure water to find its way up outside the casing, and into dry, porous, or partially wet upper strata. It must be noted that the casing shoe is greater in diameter than the body of the' casing, hence a hollow ring is cut, which is fi11ed in with 1oose materia1, affording a. passage upward for the pressure water. When the larger "telescope" casings are drawn. having only the smaller 6-in. or 4-in. casing in the bore. this tendency is increased.

At a recent meeting of landholders at Coonamb1e, evidence was given of a bore silting up to 250 ft, from the bottom. In the writer's opinion, the material was derived, not from disintegration of the artesian rock (the rock, although porous, is too firm and sound for that result), but to a run, or deposit, from above finding its way down along the annular space outside the easing, and being forced up inside the casing by degrees, or, if corrosion and perforation had taken p1ace, by admitting the loose material inside the casing.

THE PASTORALISTS' REVIEW. OCT. 15, 1910 Page 892

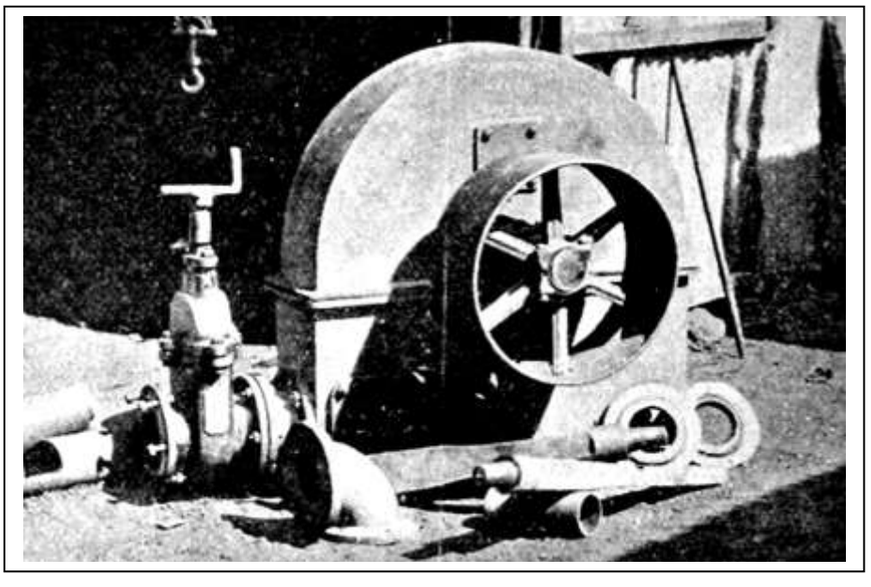
ARTESIAN BORES AND THE PELTON WHEEL

To the Editor

Sir, - In your article of 15th August last there appeared an article headed "Artesian Water Supply, - Mechanical Power derivable from artesian Bores. The Pelton Wheel."

The article contains much information which is of value to anyone interested in this subject.

But the tabulated list of Pelton wheels mentioned as being in use in this state is somewhat incomplete, and conveys no idea of the manifold uses to which the Pelton wheel is adapted, or of the degree of efficiency which can be obtained with even a comparatively low pressure and full flow of water at command. In addition to the Pelton wheels mentioned in the article referred too viz., Thargomindah, Murweh, The Rand, Llianheldol, and Hamlet Downs, there are, to my knowledge wheels in operation at Belldena, Myendetta, Elmina and Longlands. Mr. C. H. .T. Schmidt Is installing one on his next bore at Clifton and Mr. Phillot of Cunnamulla is also arranging to take this means of utilising the water power from his bore.



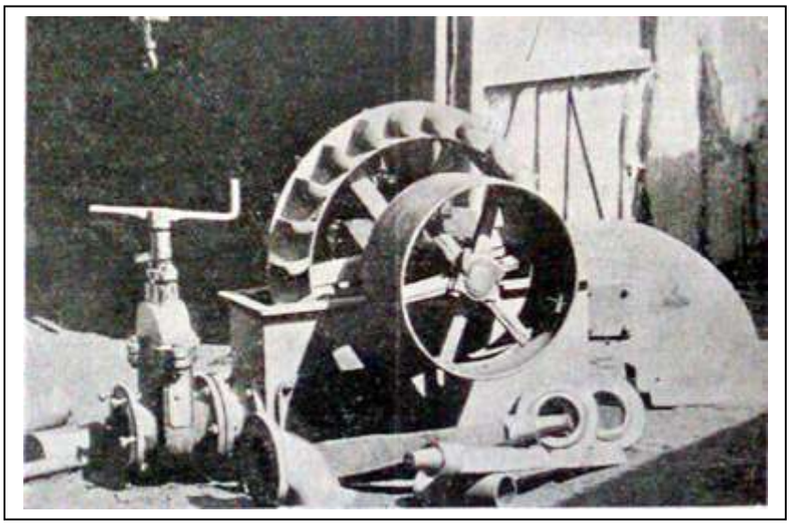
The Pelton wheel with the cover or spray shield on
(Pastoralists Review September, 1910 article)

Since reading your article I have endeavoured to glean some information respecting the work done on Pelton wheels. Mr. C. D. E Francis, of Myendetta, Charleville, writes me that he has "used the wheel for two shearings to drive six Wolseley machines, and also uses it regularly to drive a dynamo for electric light purposes." Mr. Francis adds that the pressure is only 25 lbs. to the square inch from a 2-inch nozzle, and that the flow of his bore is about one and a half million gallons per diem; and also says be is well satisfied with the wheel. Mr. G. V. Farlow, manager of Bendena, is more fortunate in the power at his command, and I understand that the Pelton wheel on that station develops an efficiency approaching 60 horse power.

He writes that the flow from the bore, which operates the wheel is estimated at three and a half million gallons per day, with a pressure of 148 lbs. to the square inch.

At present sixteen stands of shears are being driven, and Mr. Farlow adds: "We know there is sufficient power to drive fifty machines." It is also running the wool scour and fugal at one and the same time, and gives entire satisfaction.

It has been used to drive a saw bench. and has cut an enormous quantity of pine and hardwood timber for the wool shed and huts, at times driving a 4-ft. saw, which it appeared to drive as easy as the smaller ones.



With the cover off
(Pastoralists Review September, 1910 article)

Of the Murweh wheel, which drives 20 stands of shears, besides doing other work with a comparatively low pressure, both Mr. Macansh and the manager, Mr. Cameron speak in warm terms of praise, the efficiency attained being all that could be desired. The majority of the wheels I have mentioned were made in Brisbane by Mr. Hector Henderson. That on Elmina station, I understand, having been imported, and are running on bores put down by my company or its predecessor, Mr. William Woodley.

The water power thus utilised has many advantages over the steam engine for the purposes of which it is applied, as the wheel is compact, takes up little space, is of very simple construction, and requires no special skill or attention to run. being regulated only by the valve which controls the inflow of water to the wheel, the result being that when once the desired speed is has been attained the wheel will continue to run at an even pace and does away with the difficulties arising

from bad firing, inferior fuel, and consequent falling-off of steam pressure, besides relieving the owner from the necessity of having to procure a certified engineer to take charge, the only attention required being a little lubricating.

Where there is a large flow of water and it is not necessary to take the full volume and pressure to the wheel, it will be found expedient to have a T lead to the bore with an extra valve on the opposite end to that leading to the wheel, so in regulating the flow of water to the wheel it will be necessary to curtail the supply required to fill the drains. Of course it is quite obvious that the water suffers in no way through being used for power and can be conducted from the wheel by channels leading into the usual bore drains.

I have obtained a couple of photographs, which I enclose, giving two different views of the wheel, these may be of interest.

One shows the wheel with cover or spray shield ff, and exposing the wheel and cups, and the other ready for mounting and connecting with the bore head.

I am Sir, &c
ROBERT BISCOE,
Secretary Woodley Limited.
Brisbane, 30th September. 1910.

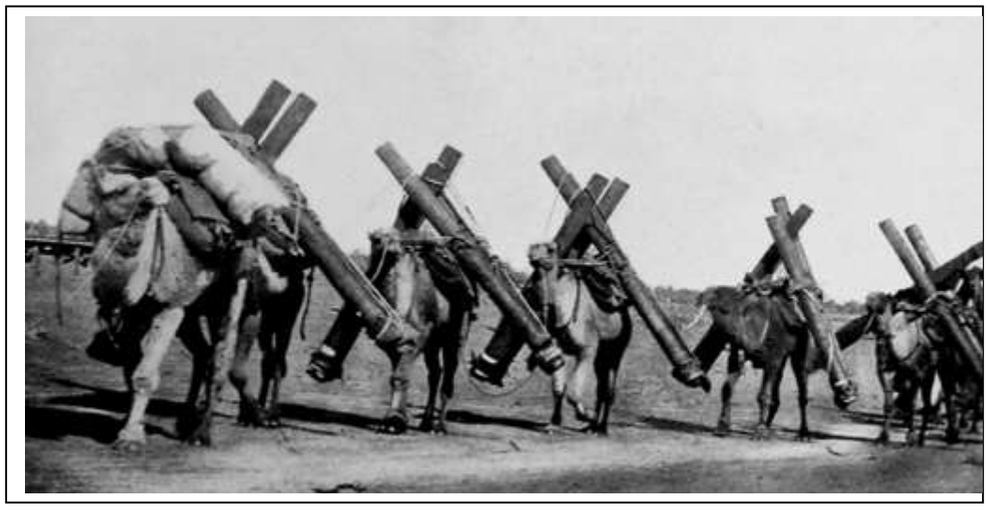
STATIONS FIRST CREDITED WITH USING PELTON WHEEL POWER

Borora		
Elmina		
Murwah	20 Stands of Wolseley machines	1906 - 1910
Kilgower	15 Stands of Wolseley machines	(Charleville)
Myedetta	6 Stands of Wolseley machines	
Beldena		
Bendena	Shearing machines	
Thargomindah		
The Rand		
Llianheldol		
Hamlet Downs		
Bando Station		
Longlands		
Clifton		
Ularunda		
Clifton		

(Morawa Historical Society)

Pelton wheel and dynamo at Warrambah station, Cunnamulla district Queensland
(Photo courtesy Bob Bird)

Photo of the vanes within the Pelton wheel unit at Warrambah Station
(Photo courtesy Bob Bird)



Two views of camels transporting bore casings near Bourke NSW
(Courtesy National Library of Australia)

Bore at Murweh station 1890, depth 548 metres and gave 83,000.000 Litres per 24 hours

WARRAMBAH STATION

Warrambah station (*Cunnamulla*) is located east of *Tuen* about midway between Barringun and *Cunnamulla*. It now forms part of *Noorama* Station.

The 1923 Australian Pastoral Directory shows the owners as A.K. and M. S. Cotter with a license to carry 6 cattle and 12308 sheep. A later year shows the owners as the *Warrambah* Pastoral Co. with a postal address of *Cunnamulla*.

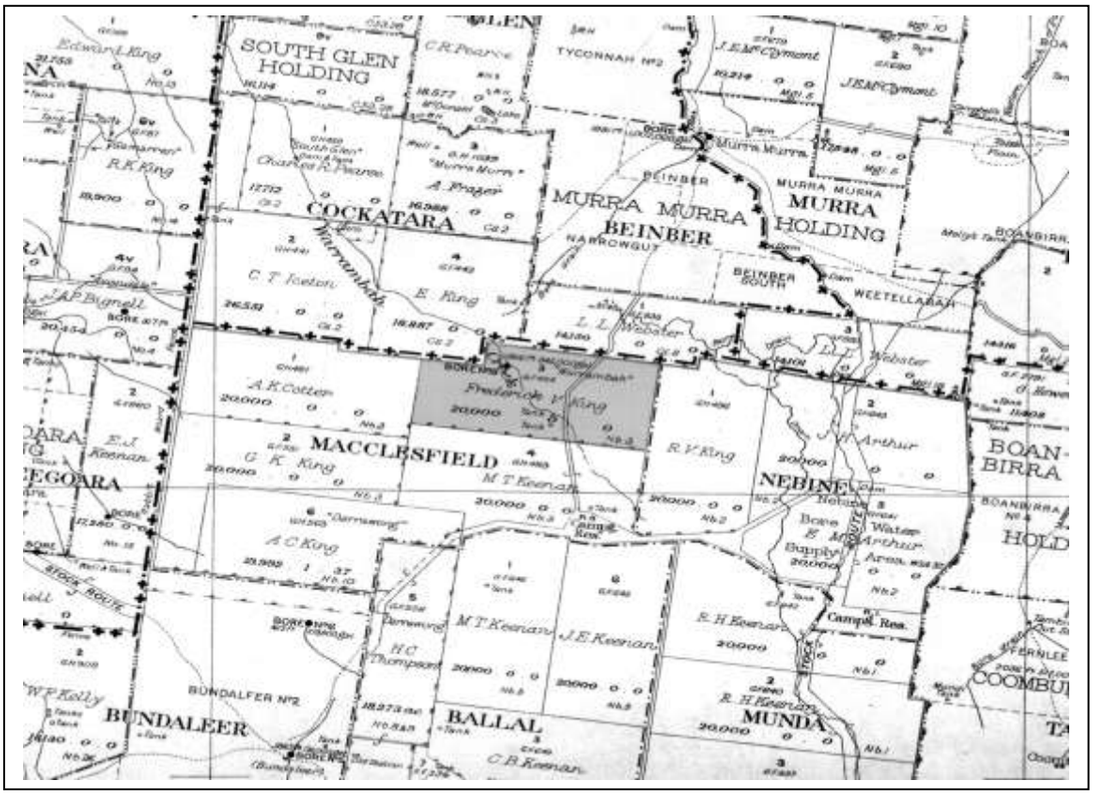
The *Argus Newspaper* of Melbourne records the sale of *Middleton* Station 160 kilometres south-east of Cunnamulla, as follows :-it was purchased by F. P. Thompson of Sydney and M. Cotter of *Warrambah* Station, *Cunnamulla* in conjunction.

The Courier-mail of Brisbane records the sale of *Warrambah* on Friday the 25th February 1938 as follows :-

The sale is also reported by Morehead's Ltd, in conjunction with Sturmfel's Primary Producers Co-Operative Association Ltd. *Cunnamulla* branch on account of Messrs. A.K. and M. S. Cotter of G.H. No. 496portion of their *Warrambah* holding near *Cunnamulla*, comprising 20,000 acres grazing homestead, unstocked. The buyer was Mr. E. V. T. Webster of *Willacora, Cunnamulla* at a satisfactory price.

The Warrambah Brand shown above was held by Frederick Venn King of Warrambah, Wheelamurra, Cunnamulla

(Taken from the Queensland Brand directory 1920 – 21)



INTRODUCTION

This booklet has been produced to highlight and record another chapter in the remarkable life of Frederick York Wolseley, Australian Pioneer, a visionary, Squatter, cattle and sheep farmer, inventor and manufacturer.

Following his arrival in Melbourne in 1852, he took up sheep and wool farming on his brother in Law's property near Deniliquin in NSW. After successful and profitable years he then took up property in the Pilliga region and later at Walgett, where he became a successful inventor with his patents taken out of the first successful machine shearing machine.

He also acquired, along with partner Langloh Parker of Bangate station, property in southern Queensland near the township of Cunnamulla, a huge area of waste land which they divided up into sections and merged them into a station which Wolseley called Elmina .

Located approximately 80 kilometres north east of Cunnamulla, little has been recorded of Elmina during those very early days of occupation.

A pioneer in the sinking of tanks and dams, and drilling into the artesian basin, years before bores were recorded in Queensland he created such innovations as a four wheel, horse drawn earth scoop for digging bore drains, and a deep well pump capable of lifting both sand and water. He is regarded by many as being one of the nations exceptional pioneers in our story of wool.

Bad and sad times descended on Elmina and along with the majority of these early Queensland pastoralists, both Wolseley and Parker in their now separate lives succumbed to the ravages of Australia's biggest drought forcing them into liquidation and bankruptcy.

The advent of improved drilling technology along with the introduction of the American designed Pelton wheel enabled the following generation of pastoralists, embodied in such men as E. E. Fletcher, who acquired Elmina following Wolseley's relinquishing of the property in 1894.

This is a part-only story of Fred Wolseley His Elmina station.

Ian Itter
Swan Hill
2011

CHAPTER 1

Elmina was acquired in 1876 by a partnership of Frederick York Wolseley of Euroka station just south of Walgett and Langloh Parker of Bangate station near Lightning Ridge in northern New South Wales.

These two men had known each other for many years by Frederick owning Cobran and Thule stations near Deniliquin and Langloh managing along with his brothers the great Yanga and Canally stations near Balranald.

Both men were members of the exclusive Melbourne Club and the Union Club in Sydney and were the (by some) much maligned Squatters of the day, quite well off financially with access to money when a good proposition was offered. Parker came from a Tasmanian family, his uncle being Augustus Morris, a Riverina pioneer, who became involved with setting up meat freezing operations in the early days of refrigeration. While Wolseley came of a landed family in Ireland and Staffordshire he was also a brother to General Garnett Wolseley and had enjoyed several years of good returns from his wool clip, selling to the American market as opposed to the main market in England.

With many years of practical experience in cattle and sheep, both men had independently moved to northern New South Wales and commenced farming. These moves were in response to their urge and need to acquire more acres and more livestock and therefore more profit.

Many Victorian and Riverina pastoralists made the move to outback properties and the main reason given was the introduction of the settler farmer and the land laws of the day which allowed the settler to claim certain lands through the Resumed Lands Act, many of the larger pastoralists often times lost to the settler the most productive and fertile portions of their Runs, forcing the pastoralist to seek further afield for lands to continue their pursuits.

The country at the time of acquisition by Parker and Wolseley was in what we now call a wet cycle, which gave to the land seasonal rains at certain times of the year, and annual flooding of the rivers and water courses, a good climate on which to commence farming.

With the onset of bad seasons in the late 1880's, which culminated in the great national drought of 1890 to 1905, holders of livestock commenced taking action to acquire water from underground sources. It was already known that underground water existed with springs and soaks being present on properties in and around the Elmina area.

Fred Wolseley had had previous experience with sinking tanks and the drilling of bores on his Cobran and Thule stations, all of which he relates in his submission to a Royal commission on water conservation held at Walgett in 1885.

By perusing early maps and reading the letters of Clyde Overall of Wongalee station dated 1961 and a personal letter of the Winter family of Coonabarabran, it can be seen that they all record the existence of active springs and soaks. Mr. Overall is quite explicit in his mention of each spring or soak on Elmina and Calabar.

It would appear, and this is calculated speculation, that during the occupation of Elmina by Wolseley that early attempts were made to increase the availability of water by expending the size the springs and soaks by creating tanks (dams) nearby to allow easier access by stock. The story exists that the "Rock Tank" was dug out using Chinese labourers, which would be in line with methods employed by Wolseley as it is recorded that he installed a twelve wire dog fence at Glenn Innes using Chinese and Aboriginal labourers. Another story on the same tank is that it was blasted out. The smooth bottom indicates chipping away by manual labour.

Bores were not put down until either the end of Wolseley's occupancy or the very start of E. E. Fletchers ownership, this would be in the 1883 – 1885 period, and Mr. Overall states that by the time of his occupancy in 1906.

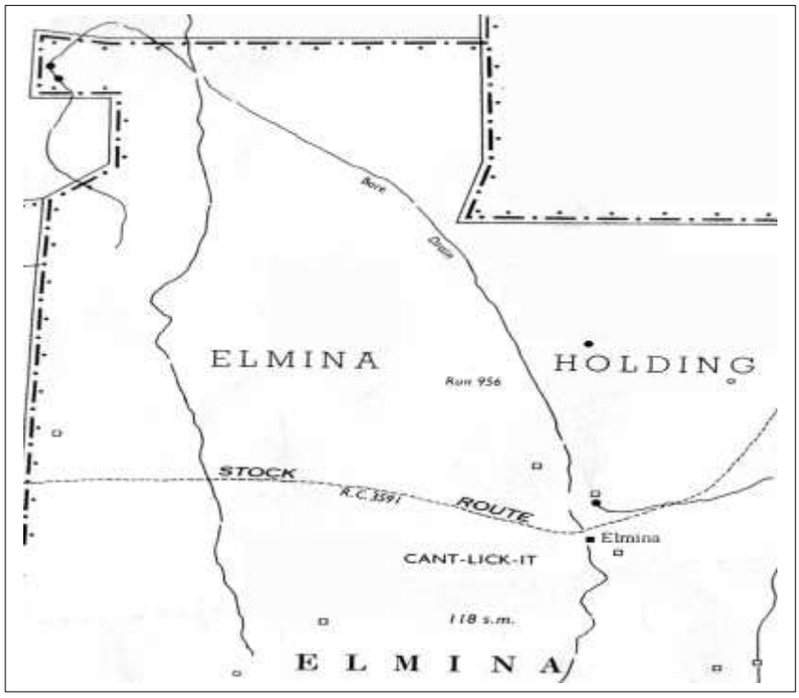
On a visit to the property in May 2011, these springs and soaks were visited, photographed and noted for this publication, confirming previously published references.

The first mention of Elmina comes from the *"List of Stations"* held by the Queensland Archives and displays the partnership of Wolseley and Parker in acquiring the run in 1876.

499	Wolseley and Parker	…….	Fisherman
500	Ditto	…….	Lang Boyd
501	Ditto	…….	Cobbrum
502	Ditto	…….	Thule
503	Ditto	…….	Mooro
504	Ditto	…….	Cant-Lickit
505	Ditto	…….	Dumble

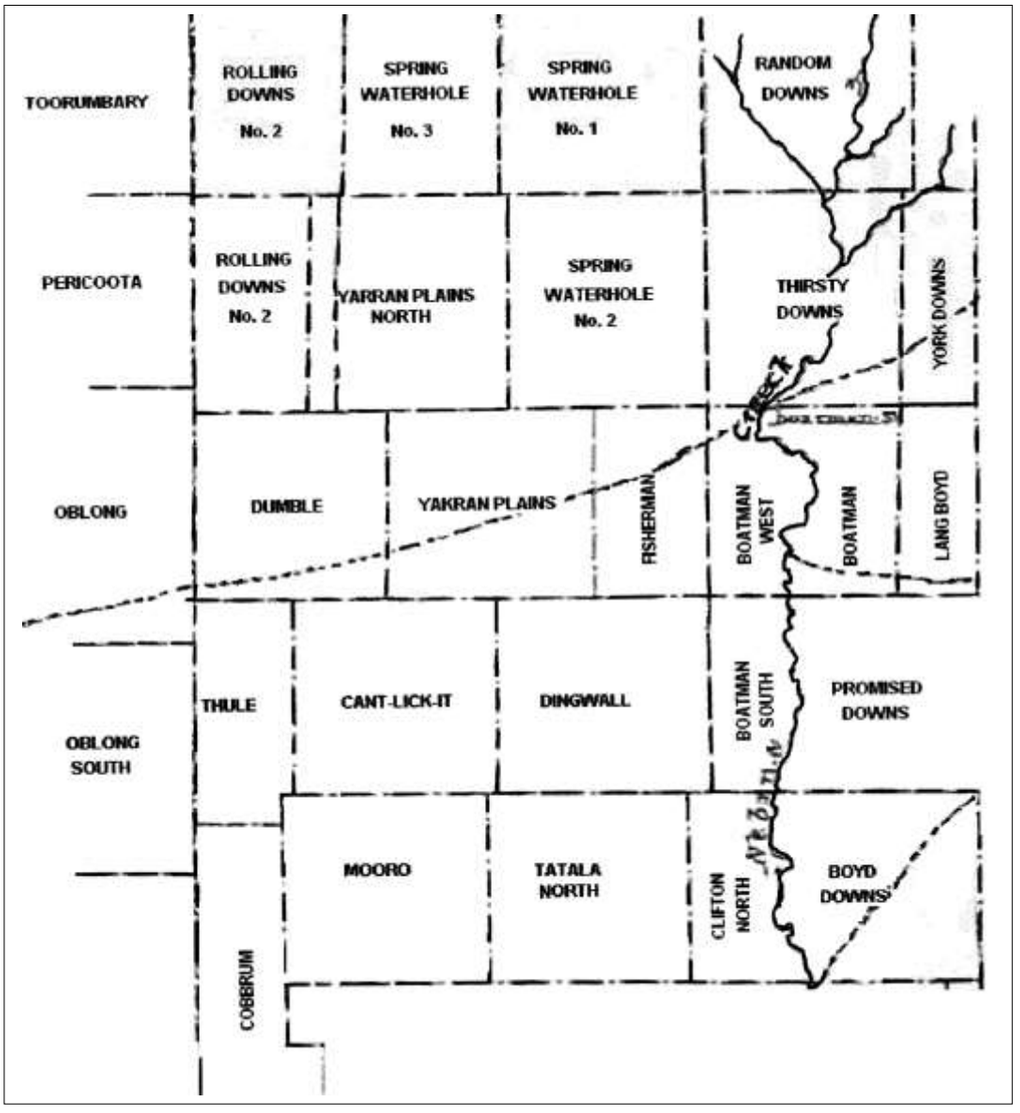
Entry of Wolseley and Parker properties in the "List of Runs"

The "Rock Tank"



Map of Wolseley's Elmina and Cant-Lick-It Stations
(Courtesy Queensland State Archives – Bill Kitson)

Twin bores on the Dumble(Jondarie) Block



Map showing the Wolseley/Parker leases that made up Elmina Station, namely Dumble, Fisherman, Boatman, Langboyd, Can't Lick-it, Mooro, Thule and Cobbrum (Courtesy, Queensland State Archives – Bill Kitson)

Although Wolseley lived mainly at Euroka, he was, by nature of his occupations, a prolific traveler and a traveler of great distances, as will be found in the book "*Fred Wolseley – A Man of Many Parts"* and although he had a station manager and workers, it would seem that he did spend quite a deal of time on Elmina.

At the time of his

Elmina Station is situated in the Cunnamulla/Wyandra area in Queensland and was acquired by the Fletcher brothers in 1894. The partnership consisted of Ernest Charles Fletcher, John Erling Fletcher, Eliza Lavinia Fletcher Mary Effie Fletcher, Mrs. Ida Constance Wilkinson (nee Fletcher, Mona May Fletcher, When this partnership was split up in 1922, Elmina was taken by J. E. Fletcher and Co.. The members of this partnership being John Erling Fletcher, Mary Effie Fletcher and Mona May Fletcher.

Elmina was later sold to the Baker Brothers in 1923, John Erling Fletcher then took up Thirsty Downs. Norman Fletcher, another brother had mining interests at Jenanderie.

THE FLETCHER BROTHERS

Ularunda Station in the Charleville area in Queensland was taken up by the Fletcher Brothers partnership in 1907.

When the partnership was split up in 1922, Ernest Fletcher & Co. took over Ularunda. This company consisted of Ernest Charles Fletcher, Mrs. Ida Constance Wilkinson (nee Fletcher) and Eliza Lavinia Fletcher, Hamlet Fletcher, the father of the Fletcher Brothers partnership, had taken up a property at Aberfeldie, near Wee Waa, NSW in 1877. his granddaughter Dorothy Cottrell, the novelist, lived at Ularunda for some time. George Story who corresponded with Ernest regularly, was the manager of Sturmfels, Wool and produce brokers, Stock and Station Agents, Brisbane.

NOTABLE PASTORAL FIGURE
Death of E. C. Fletcher
by one who knew him

The passing of Ernest Fletcher of Ularunda Station, Morven, has removed one of the most remarkable figures of Queensland pastoral life.

He was born in Tasmania 73 years ago, and his family finally settled at Bulcarrol Station in New South Wales, where they lived until his father died and the estate was sold . In 1886, he came to Queensland with his brother, the late Edwin Fletcher, of Mitchell, and they set out to retrieve the families fortunes by overlanding on a large scale.

From the Gulf and the Territory large mobs of cattle were taken down the undeveloped tracks of far-western Queensland into New South Wales and Victoria. The exploits on these arduous trips are a romance in themselves.

Prospering as their courage deserved, they were joined by their younger brothers , and as such, purchased "Elmina" Station in 1893. So well did they succeed that they acquired Ularunda, a vast stretch of abandoned and waterless country near Morven, and set about it's development. The tale of Ularunda, its disasters and its triumphs, its floods, fires and droughts, was recorded in Dorothy Cottrell's novel "Earth Battle" which she dedicated to Mr. Fletcher, who her uncle.

In recent years the family divided their assets, and Ernest Fletcher and his sister, Mrs. Wilkinson, made Ularunda their home. He died there on September the 7th, and his body, at his own wish, was cremated in Brisbane.

It is not alone for his success as a pastoralist the E. C. Fletcher will be remembered. Although early in life he was forced to leave school, and take up the routine of the saddle and campfire. He read widely, and the range of his interest and information was great. He developed a flair for political economy, and became an ardent supporter of the Liberal school of freedom of trade .

In 1897, a deputation requested him to stand for Parliament in the Labour interest and about 12 years ago he was asked to stand in the Nationalist cause, but he had, no desire for public life. However he took a keen interest in current affairs, and letters and articles from his pen appeared in journals of all states when his convictions demanded a protest.

He fought the protectionist policy, and ardently supported social services to distressed sections of the community, but warned against the saddling of profitable industries with a load of unprofitable ones as a permanent right and policy. Although a cattleman he fought the proposal for a beef bonus in Queensland on these grounds . His work was largely instrumental in finally defeating the scheme.

Perhaps the most noteworthy effort of his career, however was his battle with the B.A.W.R.A. . This organisation created in wartime to handle the disposal of war wool, made in a bold bid to retain control of Australian wool when normal times returned. When the final vote was taken, many were ready to admit that it was a particularly brilliant article from Ularunda which won the day. Queensland can ill afford to lose men of the type of E. C. Fletcher.

ELMINA STATION - WYANDRA (MARANOA DISTRICT)

Estimated area of Dumble Station 82 square miles

• 1876	F.Y. Wolseley leases Dumble Station along with Langloh Parker
• 1876 – 1883	Wolseley and Parker consolidate the properties, Fisherman, Lang Boyd, Cobbrum, Thule, Mooro, Cant Lick It and Dumble into "Elmina"
• 1882	Wolseley and Parker.
• 1883	F. Y. Wolseley alone
• 1883	Blackwood and Moore (Dalgety's)
• 1894	Wolseley (Dalgety as Mortgagee) to Fletcher brothers
• 1894	E. E. Fletcher
• 1897	Boatman and Elmina Bore was sunk (called the Jubilee Bore)
• 1911	100 square miles resumed from Elmina
• 1913	The Mooro Lease surrendered
• 1924	Sold by Fletcher to Baker Brothers
• 1950's	Baker Brothers surrendered the Calabah holding and partial surrender of Elmina and Tong holdings in return for pastoral lease on Gowrie
• 1962	The Baker Brothers surrendered the Dumble Block
• 1962	The Bakers sold to Gibson and Howe
• 1972	Sold to Dr. K. G. Brown (turned into cattle Station)
• 1985	Dr Brown sold to Frank Wolstenholme of Narromine
• 1987	Both Joondooree and Elmina purchased by The Tomlinson Family

WARRAMBAH STATION CUNNAMULLA

In Queensland, the 32,826 hectare free holding "Warrambah", located between St. George and Cunnamulla in the state's south east, goes to auction today through Westfarmers Dalgety.

The property is being sold bare of livestock, but can carry 1200 cows and progeny. Improvements include a five bedroom homestead, shearer's quarters, woolshed and yards.

"Warrambah" provides an outstanding balance of country, with most of the gidyea and brigalow rung out, providing a sweet , healthy livestock environment of natural breeding and fattening country.

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THE PELTON WHEELS OF CUNNAMULLA
ISBN