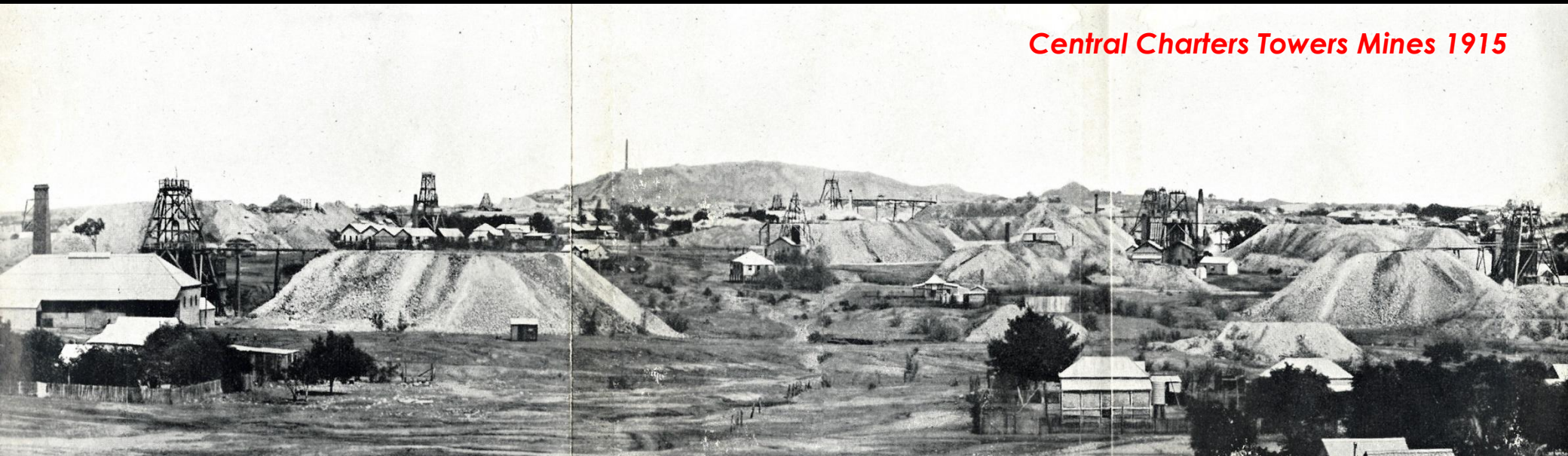


# 150 YEARS OF GOLD AT CHARTERS TOWERS

**Compiled by Jim Morrison**

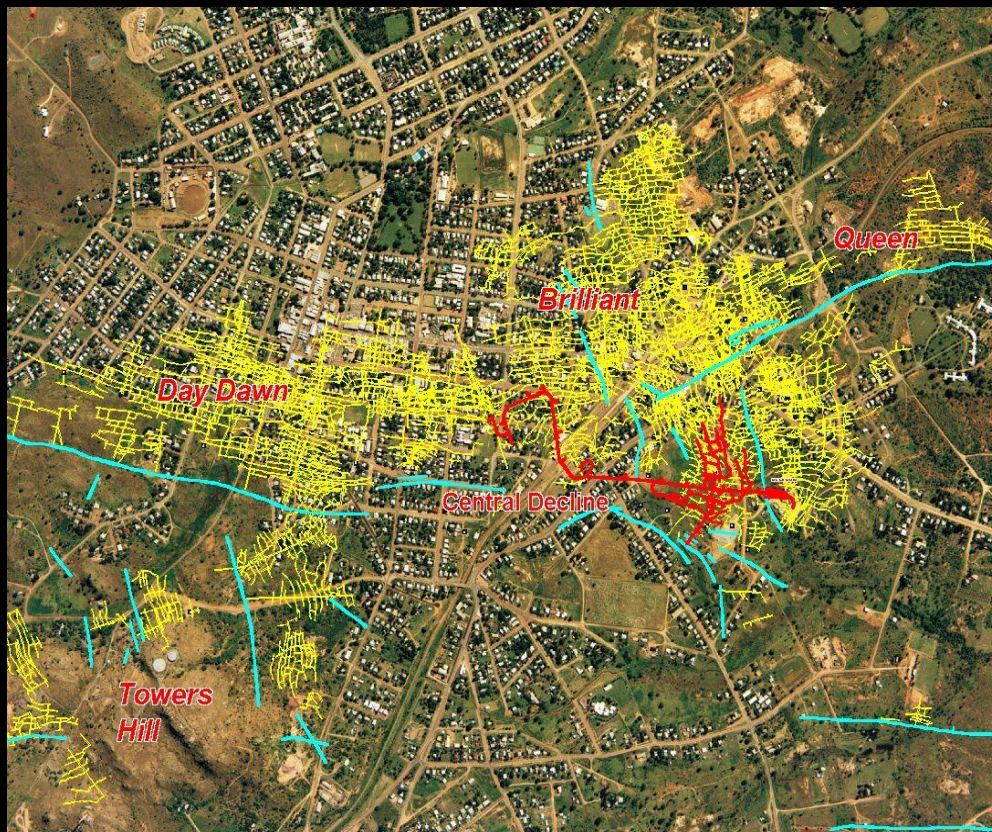
**July 2022**



*Central Charters Towers Mines 1915*

# **GOLD MINES OF AUSTRALIA LTD 1935 CHARTERS TOWERS MINES MODEL**

***HI-TECH AT THE TIME, REVEALING THE VAST  
GOLD MINES BENEATH OUR FEET***

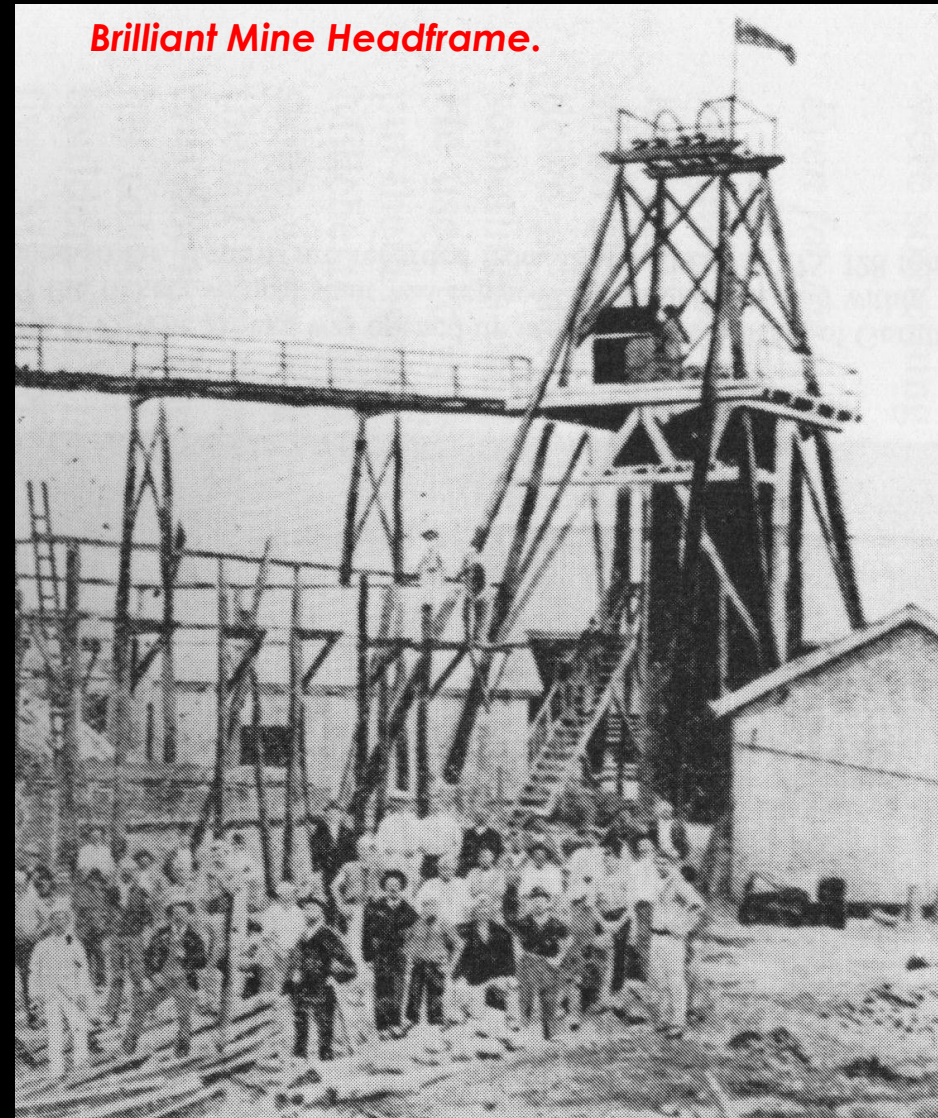


**Mines developed during the  
45 years from 1872 to 1917  
(yellow)**

***Re-opened in 1994-1999 with  
a 1.6 km long decline and  
workings (red).***

# THE CONCEALED GOLDEN LABYRINTH

*Brilliant Mine Headframe.*



***The mined area was huge:***

**covers over 3 sq. Km,  
5 km long,  
almost 1 km deep.**

***180 km of underground workings.***

**127 mines.  
8 million tonnes mined.  
6.6 million oz gold.**

***Production value in 2022 \$\$\$:***

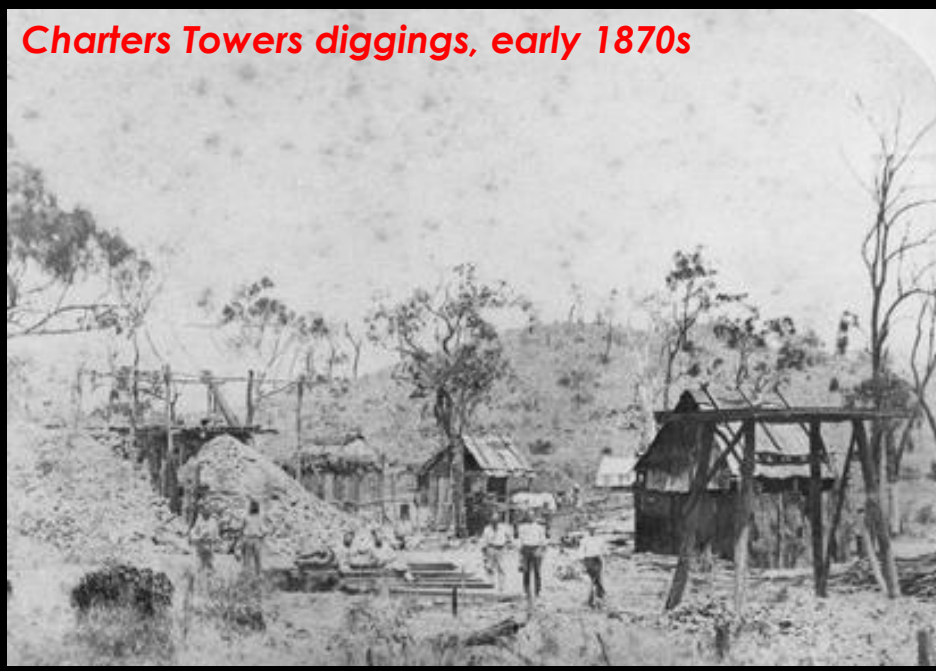
**\$ 14,100 billion in revenue.**

**\$ 5,900 billion dividends.**



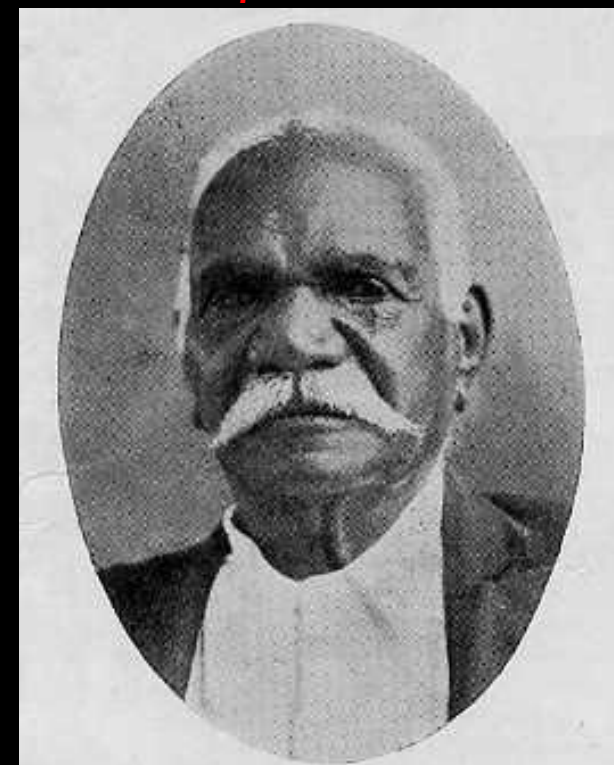
# 1871: PROSPECTORS' DISCOVERIES

Charters Towers diggings, early 1870s



- **Charters Towers, one of Australia's largest goldfields, was discovered in 1871 by Jupiter Mosman, a "horse-boy" with Fraser, Clark and Hugh Mosman's prospecting party.**

Jupiter Mosman



JUPITER MOSMAN  
Discoverer of Gold in Charters Towers, 1871

## JUPITER MOSMAN

*"We went on to a gap in the hills and camped. Our camp consisted of a small fly. I had been out and found a nice piece of stone and went back to inform Hugh Mosman, and he brought a pick and we dug it out..."*



*Burdekin River 1888*

# 1871: JUMPED!

- **They realised that they had found one of the largest gold reef systems in Australia.**
- **Gold was all through the quartz at North Australian, St Patricks, Washington and Warrior reefs**
- **When claim-jumper Pat Larkin appeared Hugh Mosman rushed to Ravenswood to register the Reward Claim but was delayed by the Burdekin River in flood.**

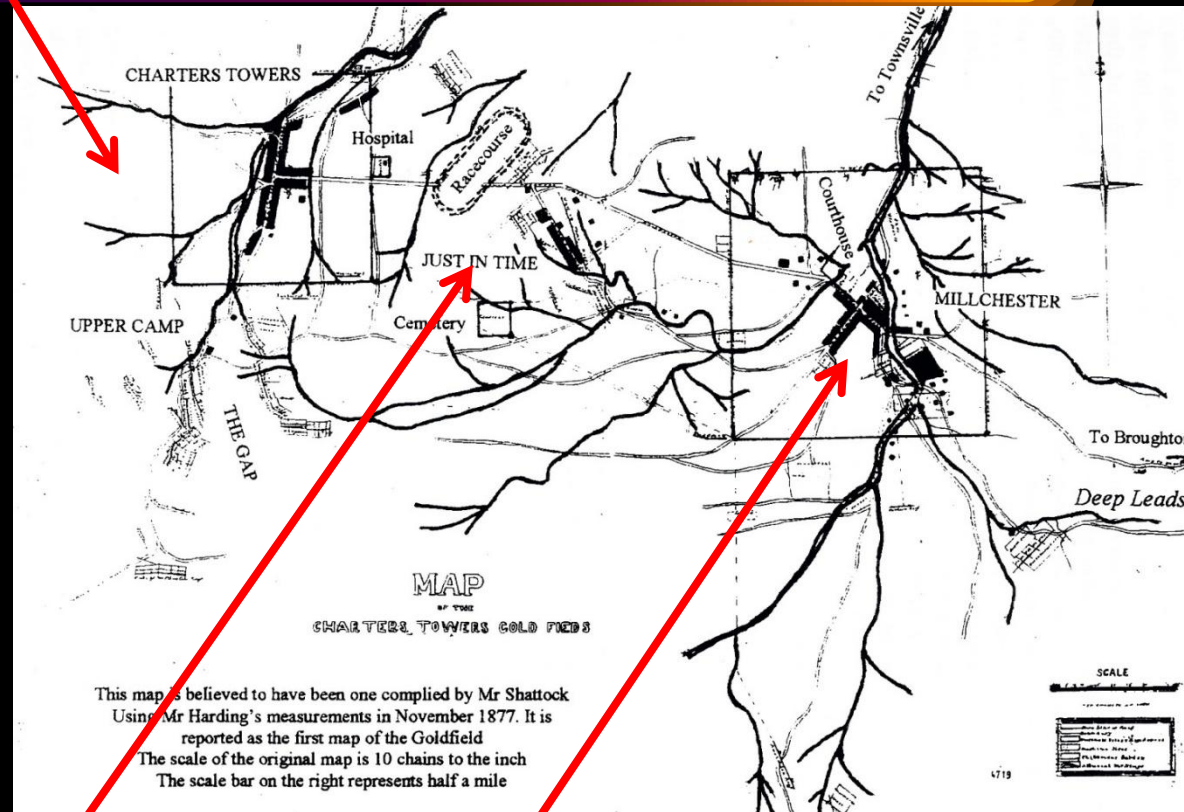


*Hugh Mosman*

# THE EVOLUTION OF THE TOWN

Upper Camp

- Initially there were three settlements Upper Camp, Just-In-Time and Millchester
- Upper Camp had the first major mines and became the main centre.
- The big gold oreshoots were made progressively over 30 years, Day Dawn in 1874, Brilliant in 1889 & Queen Cross in 1902.



Just In Time

Millchester

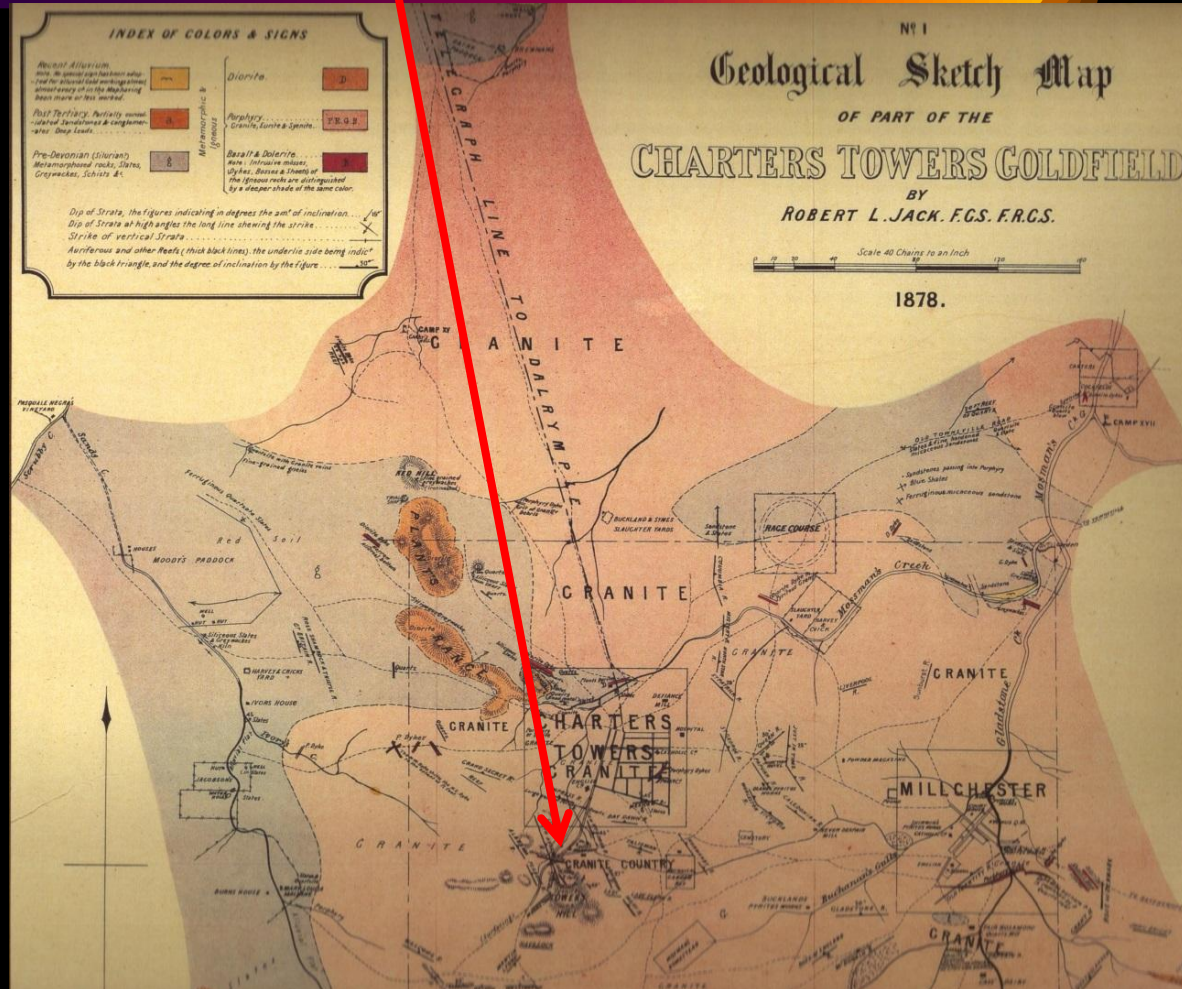
From (Janecek, 2002)



W S E M Charters

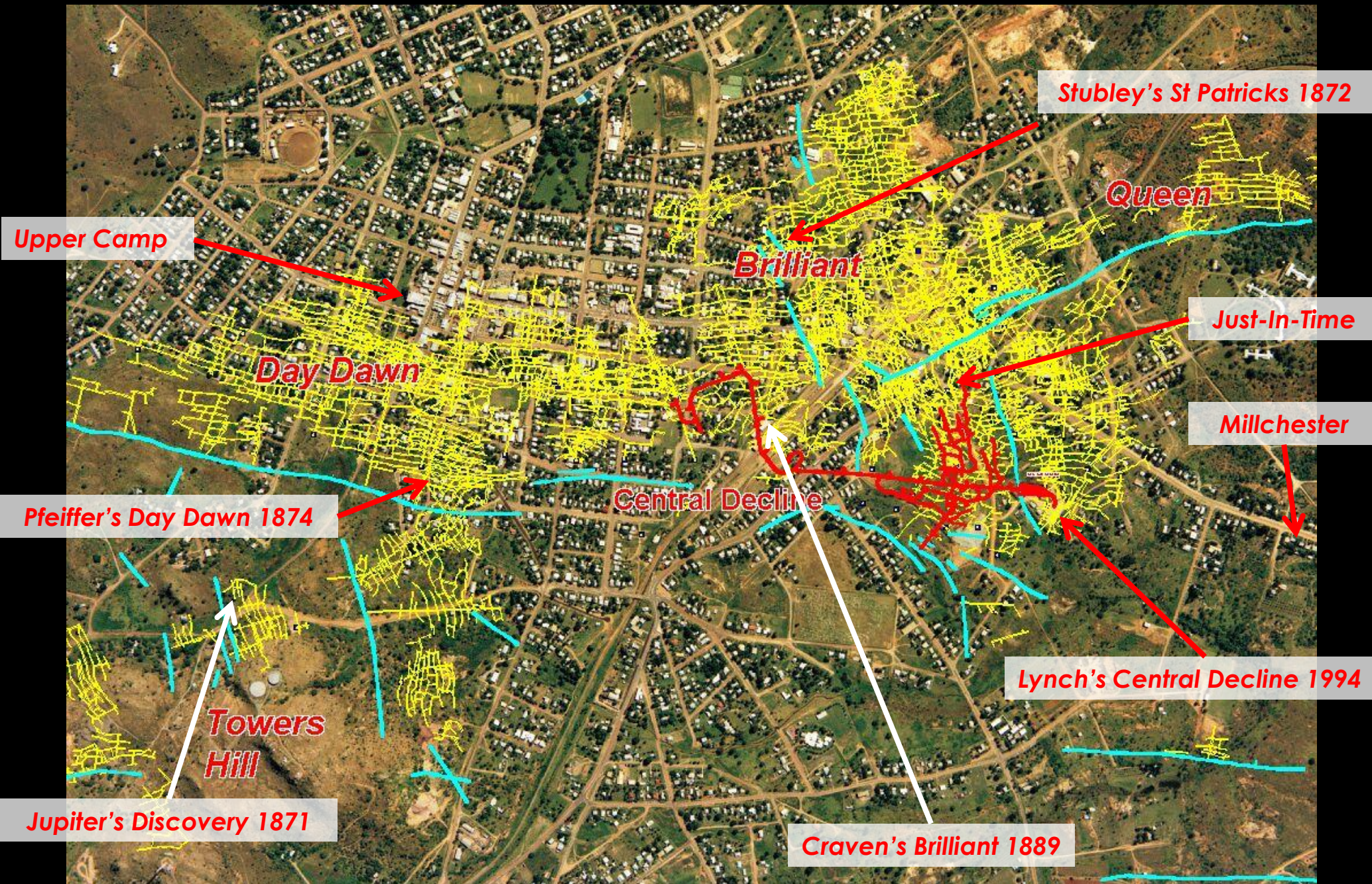
# 1872: GOLD COMMISSIONER WILLIAM S E M CHARTERS

Discovery site, North Australian, Christmas 1871.



- The history is filled with amazing characters like William Charters, who was Gold Commissioner in 1872 and from 1874 to 1880.
- The goldfield was named by the prospectors 'Charters Towers' in honour of the "big man from the Cape" River Goldfield.

# THE CONCEALED GOLDEN LABYRINTH





# 1872: FRANK STUBLEY

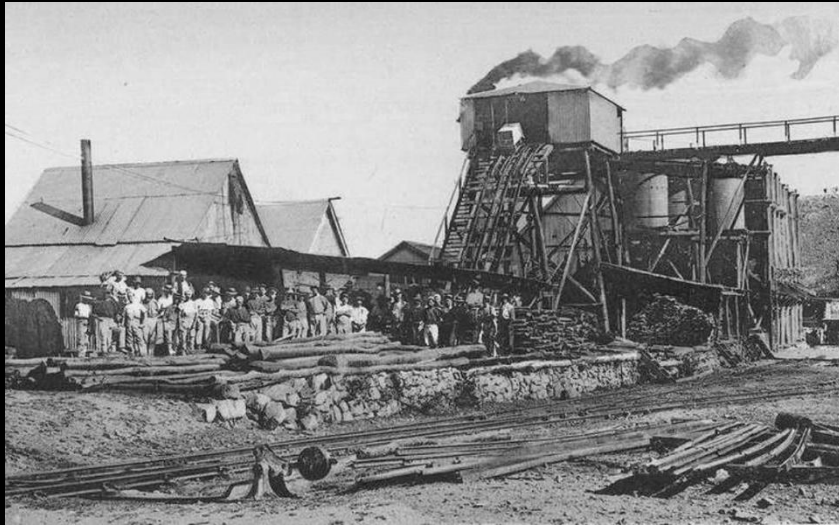


- **Frank Stubbley was conned into buying the dud St Patricks mine.**
- **He found new oreshoots and made a fortune at £ 1,000 per week (~\$250,000 AUD 2022 terms)**
- **Lost his money on futures trading.**
- **He died penniless on the road to the Croydon Goldfield.**

*St Patrick Extended Mine*



# 1874: FRIEDRICH PFEIFFER & THE DAY DAWN



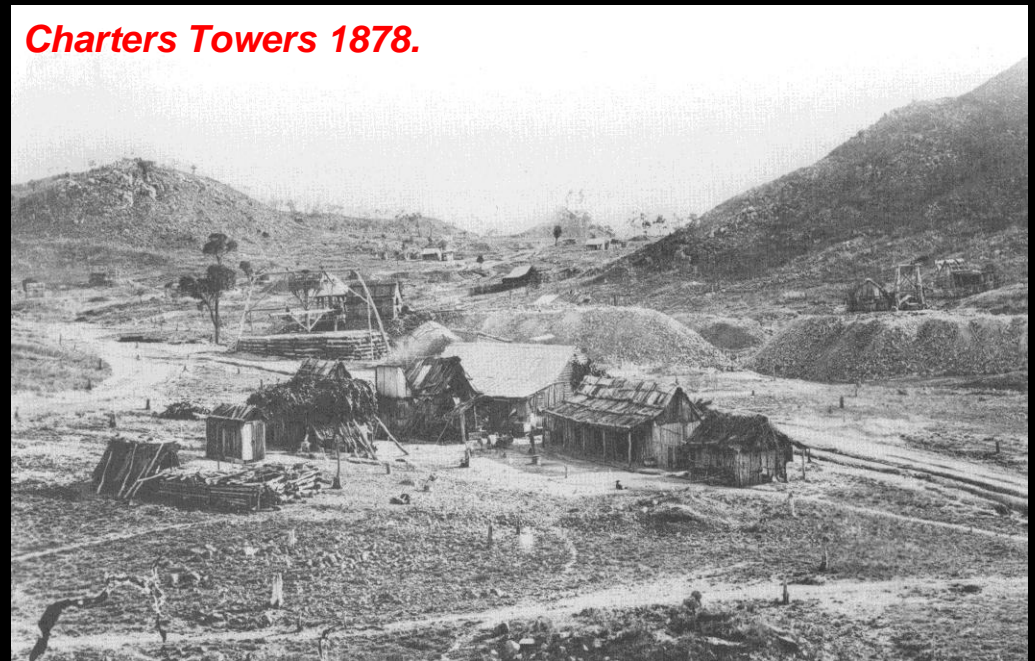
*Day Dawn Block & Wyndham, largest producer.*

*Day Dawn Mines 1890*



- After others had tried and failed, Friedrich Pfeiffer with four other Germans pegged the huge, seemingly barren Day Dawn reef outcrop.
- When they hit gold, Pfeiffer managed to buy out his English partners and made a fortune.
- He become a philanthropist from the profits and sold his leases to Tom Mills for £100,000 (2022 AUD\$~25 million).

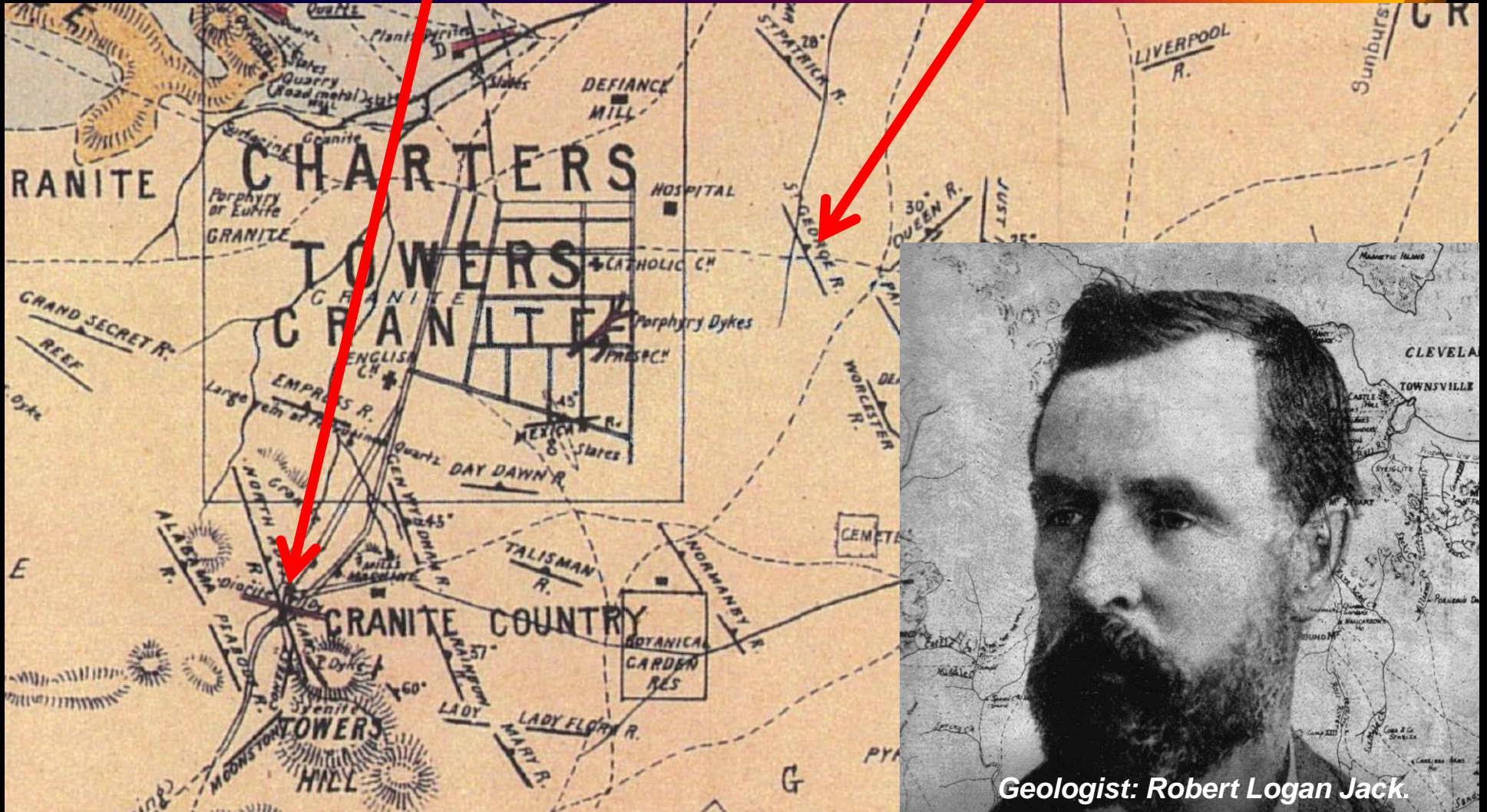
*Charters Towers 1878.*



# 1878: COMMUNICATING DISCOVERIES USING GEOLOGICAL MAPS

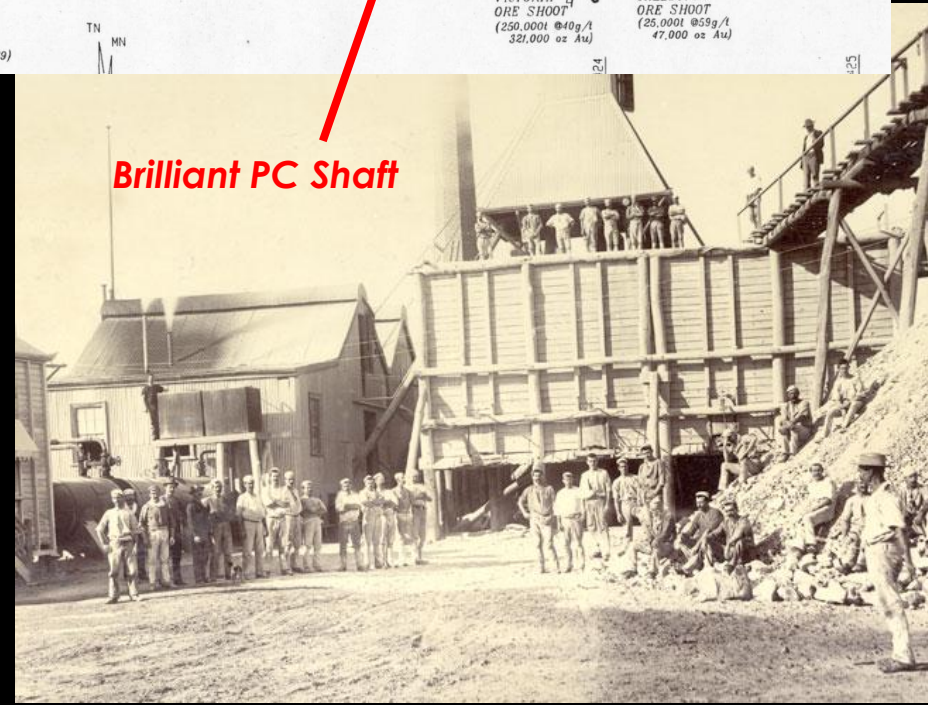
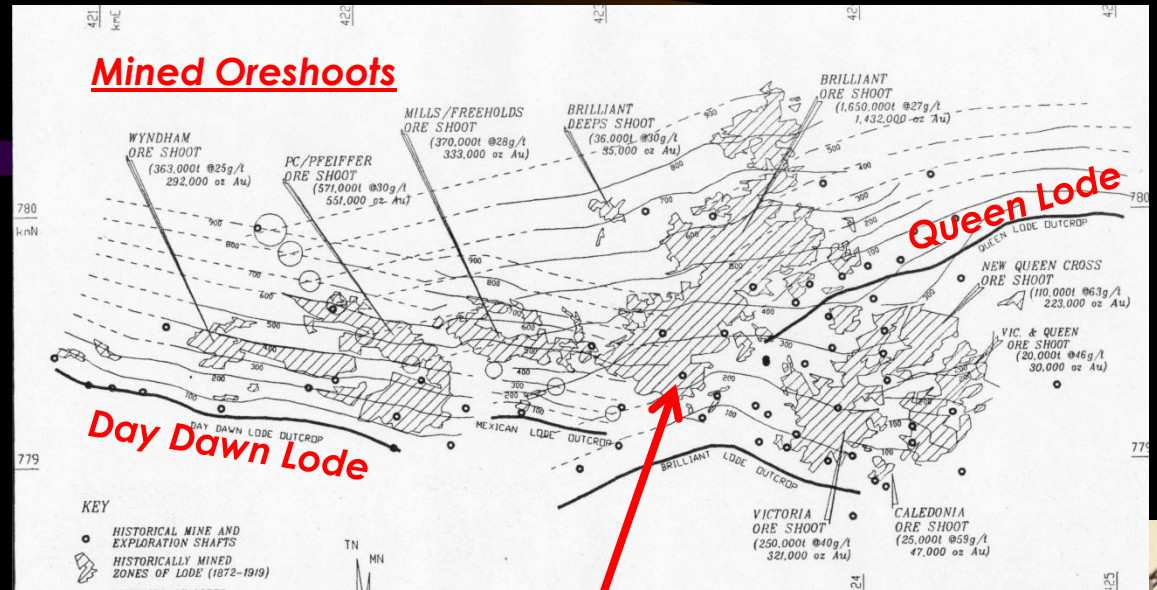
Discovery site December 1871.

Gold bearing quartz reef locations  
drafted onto maps



Geologist: Robert Logan Jack.

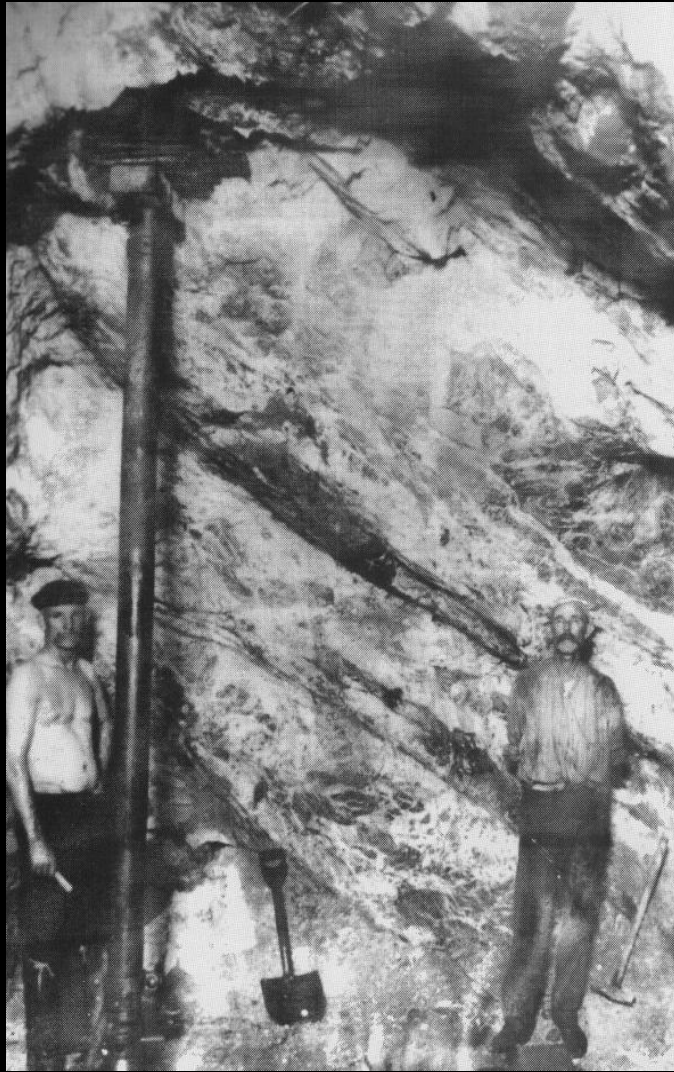
# 1887: CRAVEN & THE BRILLIANT



- With production declining, Richard Craven had a theory about gold between the *Day Dawn* and *Queen* reefs.
- He sank a blind, dud shaft 1,000 foot deep, "Craven's Folly"
- With their last money they mined out on a leader and found the fabulous 1.6 M.oz *Brilliant* shoot.

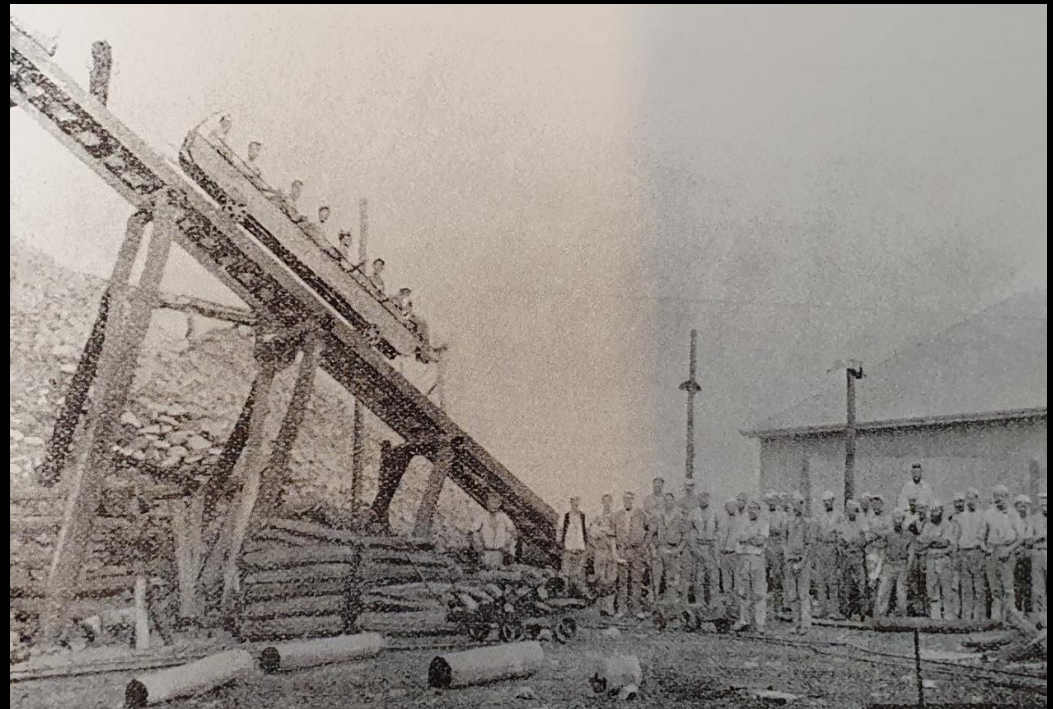
# 1890s: COMPANY MINING

## PROSPECTORS' CLAIMS CONSOLIDATED



*Brilliant St George mine.*

- 40 Companies and Stock Exchange.
- > 200,000 oz gold a year for 20 years;  
>\$500 Million at 2022 prices.
- Wage employees in dangerous work.
- Town of 27,000 people.
- Unions campaigned for better conditions.

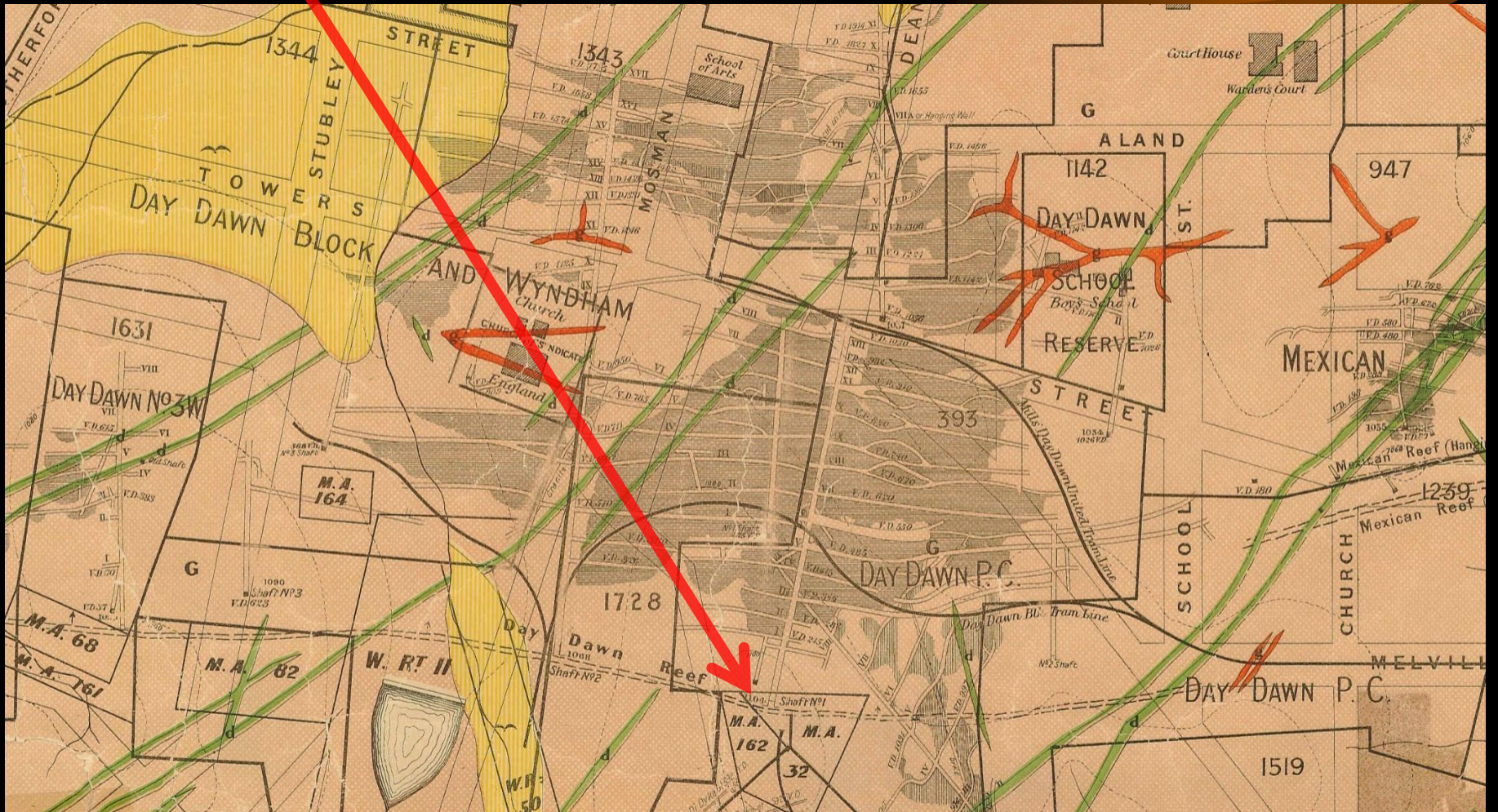


*Day Dawn PC mine 1891.*

# 1898: GEOLOGICAL MAPS OF MINES

## MINE OPENINGS PROJECTED FROM VERTICALLY BELOW

Day Dawn PC underlie shaft.

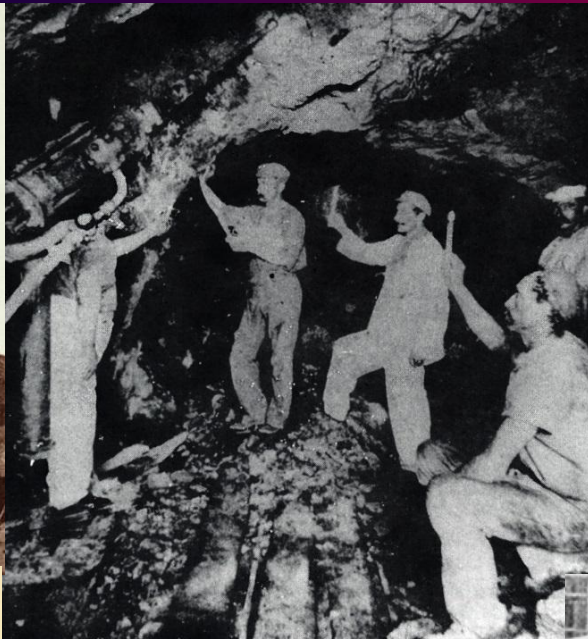
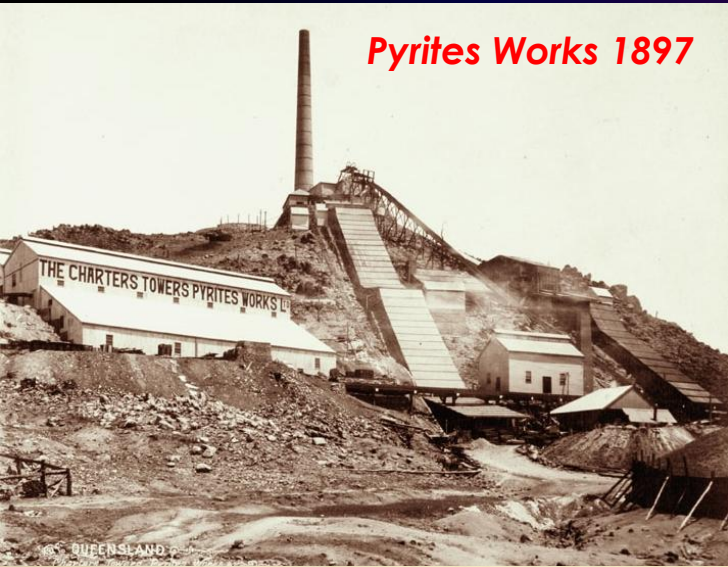


# CHARTERS TOWERS:

“THE SUPREME CITY OF THE NORTH FOR FORTY YEARS”



**Pyrites Works 1897**



**Racecourse 1899**



**Queen Cross Mine 1904**



THE QUEEN CROSS REEF GOLD MINE.

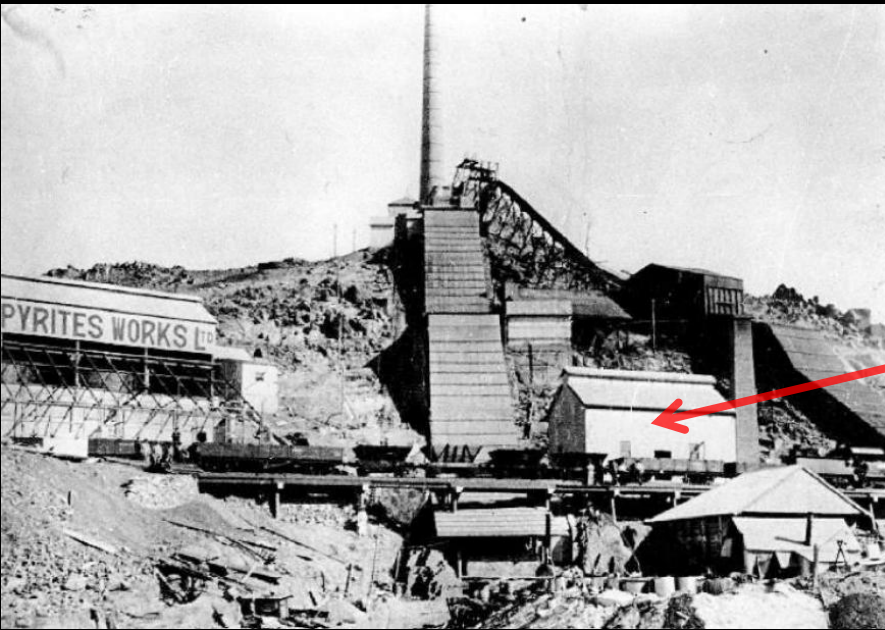
T. Willmet & Son.

**Enterprise Hotel 1905**

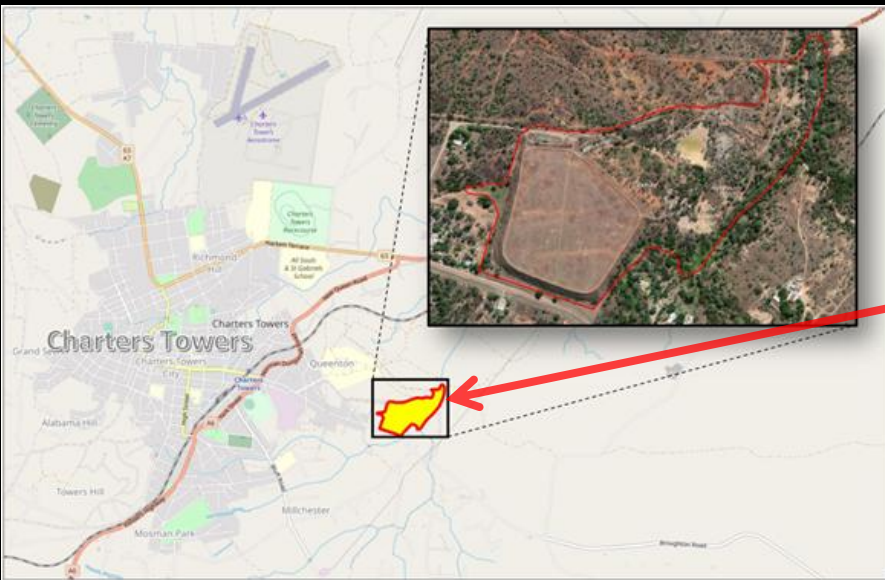


**Stock Exchange 1897**

# 1897: TAILINGS CYANIDATION BOOM



- The shallow gold was easily recovered with stamp batteries and mercury amalgamation.
- Deeper sulphide ore however needed chlorination.
- Cheaper cyanidation was first introduced in 1892 and eventually sent the Pyrites Works broke.
- From 1897 Sellar's cyanidation boom took off treating >2 million tonnes of tailings for up to 134,000 oz gold p.a.
- 1989-1992 Chariah Resources CIP plant at Millchester re-treated the remaining tailings dumps.





# 1873-1890 THADEUS O'KANE



Thadeus  
O'Kane



THE LATE MR. THADEUS JOHN O'KANE.

- O'Kane, took over the *Northern Miner* following a scandal involving his wife and the elderly British Prime Minister, Lord Palmerston.
- “The firebrand of the North”, he was constantly being sued by outraged citizens.
- He became one of the most powerful press figures in Queensland.

Lord Palmerston

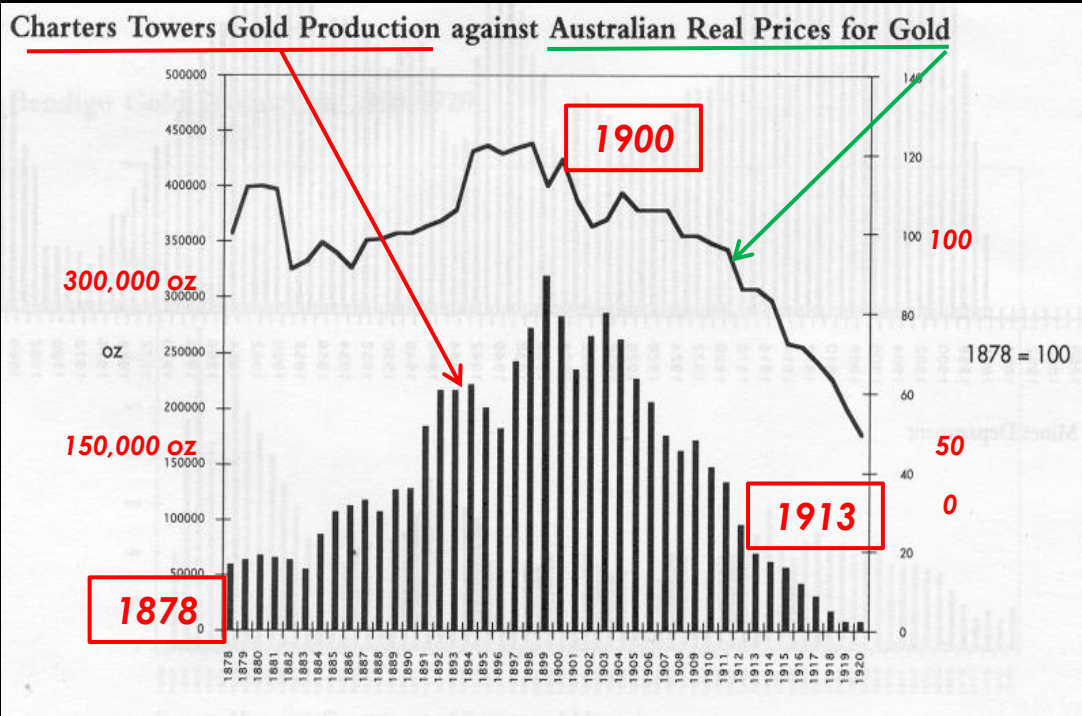


The  
Northern  
Miner



# 1903: PRODUCTION STARTED TO FALL.

## Gold Production v. Price

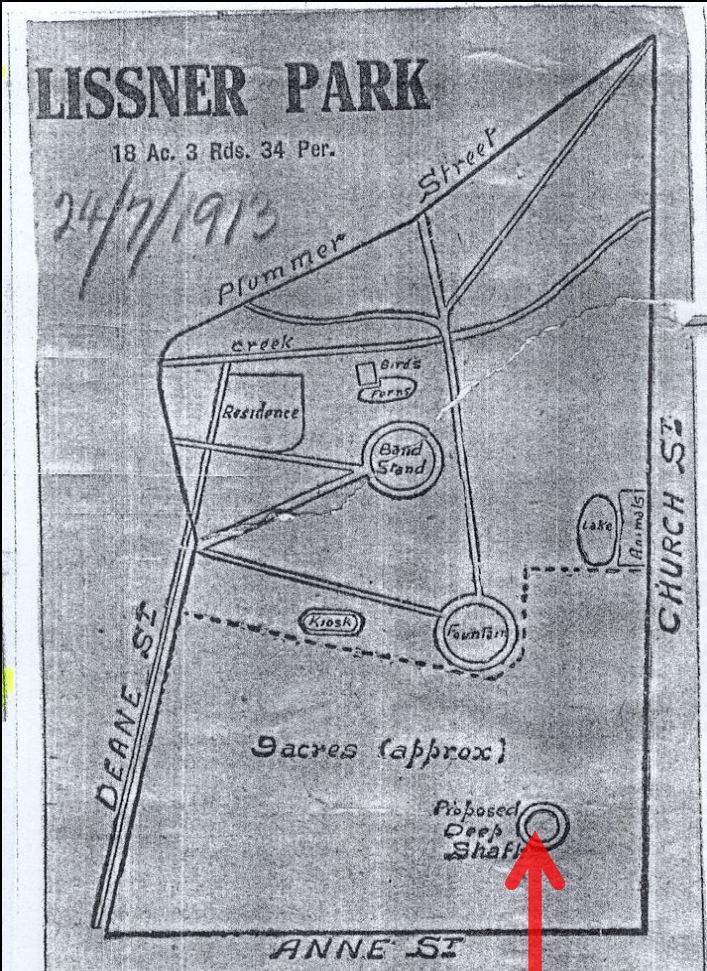


(Towsey, 2012)

- In 1903 the rich oreshoots started to run out.
- From 1900 to 1920 the real price of gold fell by ~50%.
- This was compounded by
  - Poor mine ventilation.
  - Inefficient ore handling via internal shafts.
  - High costs of fuel, timber, labour, pumping and milling.
- As mines closed, interconnected workings flooded adjacent mines.

# 1913: ATTEMPTS TO REVIVE THE MINES

- With the big mines closing, a State Government Inquiry was held in 1913 into sinking a 1,300m shaft in Lissner Park.
- The Board was in favour because the lodes continued at depth, with every probability of payable ore.
- However .....

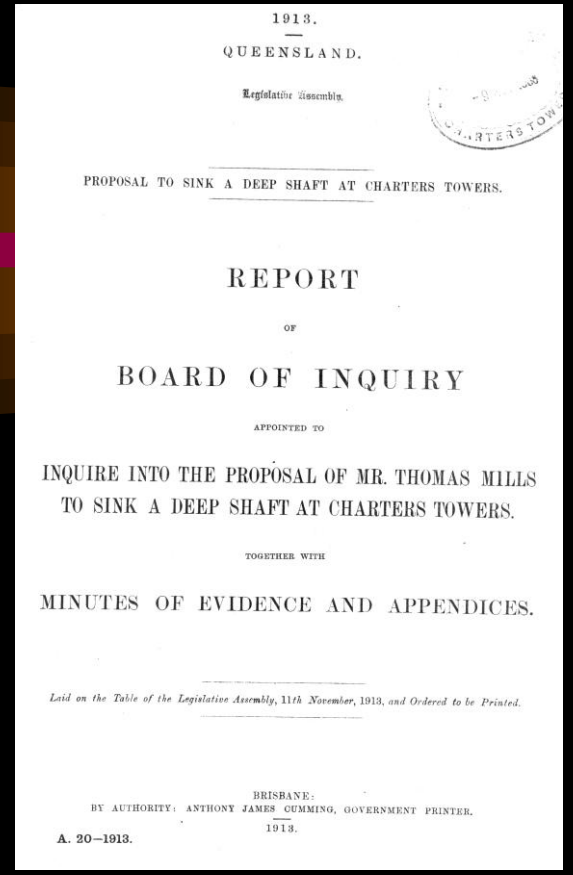


**Proposed Shaft site.**

being mined at a depth of nearly 3,000 ft., so that, as Mr. Marks remarks in his report, "depth alone need not be regarded as necessarily unfavourable to the occurrence of ore in the ground deeper still in the vicinity of the proposed shaft."

The Board have very little or no doubt that the main lode fissures, which have been followed down for a very great distance, will continue to the depth it is proposed to sink, and that being so, there is no apparent reason why other payable shoots of ore should not be met with.

The witnesses who were questioned on this subject, including the managers of all the surrounding mines, gave it as their opinion that there was every probability of discovering payable shoots of ore in the workings from the proposed deep shaft.



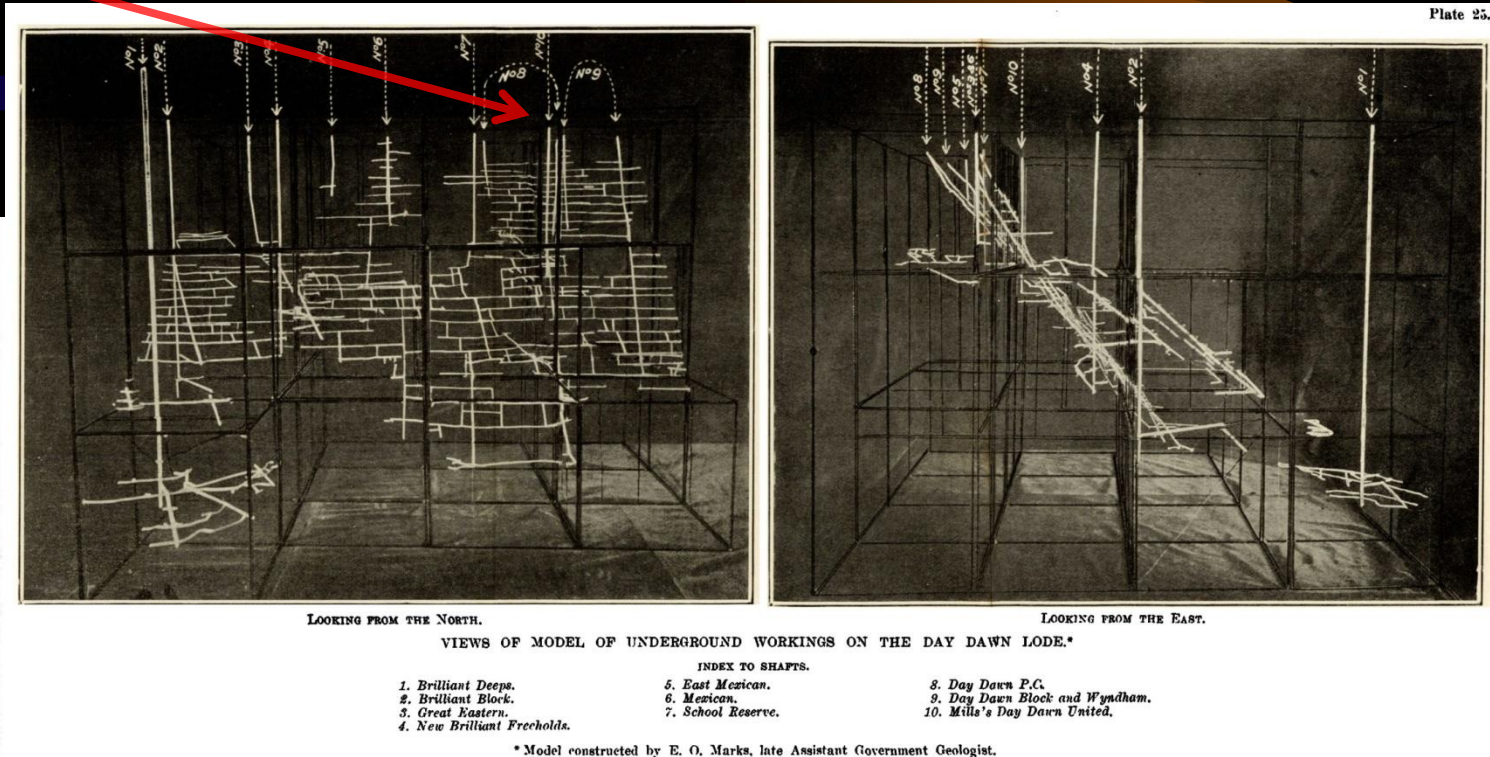
# 1913: DEEP SHAFT INQUIRY MODEL

Day Dawn PC mine shaft.

Workings in wood and wire.

## Deep Sinking Scheme.

Mr. E. O. Marks, of the geological survey office, has prepared a model of a section of the Charters Towers goldfield, for the purpose of illustration in connection with a proposal that has been made for testing the lower levels of the field. A suggestion was made by Mr. T. Mills that a shaft should be sunk in Lissner Park. Mr. Marks is inquiring into the scheme, and the model which he has prepared yesterday was inspected by the Minister for Mines (Hon. J. G. Appel), and the Under Secretary (Mr. A. R. Macdonald). Mr. Appel said he thought it would be advisable that the exploratory work in the Brilliant Deeps and Mills' United mines should be continued before the Government undertook to spend the large amount (about £100,000), which it was estimated the proposed shaft in Lissner Park, would cost, and which it was suggested should be connected with the workings of the Brilliant Deeps and Mills' United mines. The expenditure might not be justified. He agreed with the idea of Mr. Marks's that explorations should be carried on for another 500 feet, in order to ascertain whether it would be advisable to go farther towards the 4000 feet level. The work suggested by Mr. Marks was necessary in connection with the scheme.



- A scale model was built to investigate the proposal.
- The Government Geologist however recommended more Company exploration before the Government provided a loan.
- The Companies didn't have the funds and War in 1914 sealed the fate of the mines.

# 1910s: GOLD PRODUCTION DROPPED



- High costs, and problems with ventilation and water inflows at depth led to mine closures from 1905-1915.
- Population dropped from 27,000 to 6,000.
- Buildings moved to the coast, mainly to Townsville.

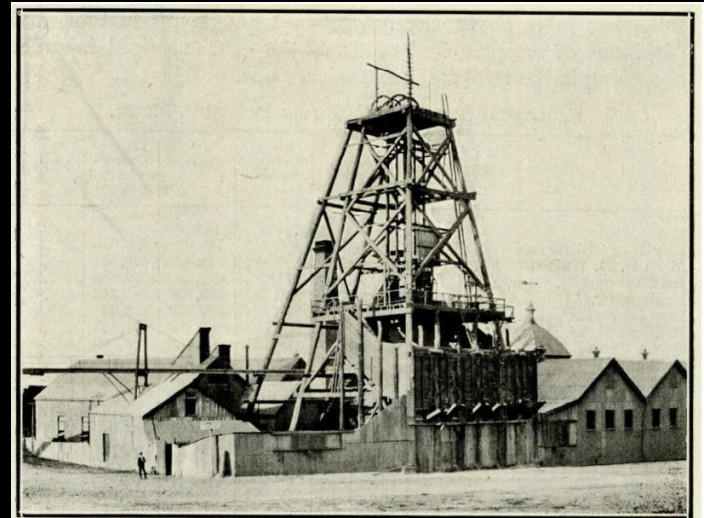


PLATE 26.—MILLS DAY DAWN UNITED MINE.

To end of 1916: Ore raised 507,428 tons, value £1,879,971;  
dividends, £667,500.

# 1934 - 35: GOLD MINES OF AUSTRALIA

## Gold Mines of Australia Limited

(Incorporated in Victoria, Australia, 28th April, 1930).

Nominal Capital:

£500,000 in 1,000,000 Shares of 10/ each

157,100 shares have been issued since incorporation, and have been privately subscribed in cash at par; they are all fully paid. A call has been granted over 10,000 shares at par until 31st March, 1934.

### GOLD MINES OF AUSTRALIA LTD.

#### CHARTERS TOWERS

Plan projection of reef contours and ore-shoots in Gold Mines of Australia's Concession Area showing areas selected for exploration on the Queen and Brilliant formations  
Scale: 400 feet = 1 inch Date: 12<sup>th</sup> June 1935

Drawn by A.B.  
Traced by K.M.G., I.C.W.

PLAN N<sup>o</sup> K42

### MINING REVIVAL AT TOWERS.

#### GOLD MINES OF AUSTRALIA INTERESTED.

CHARTERS TOWERS, Friday.

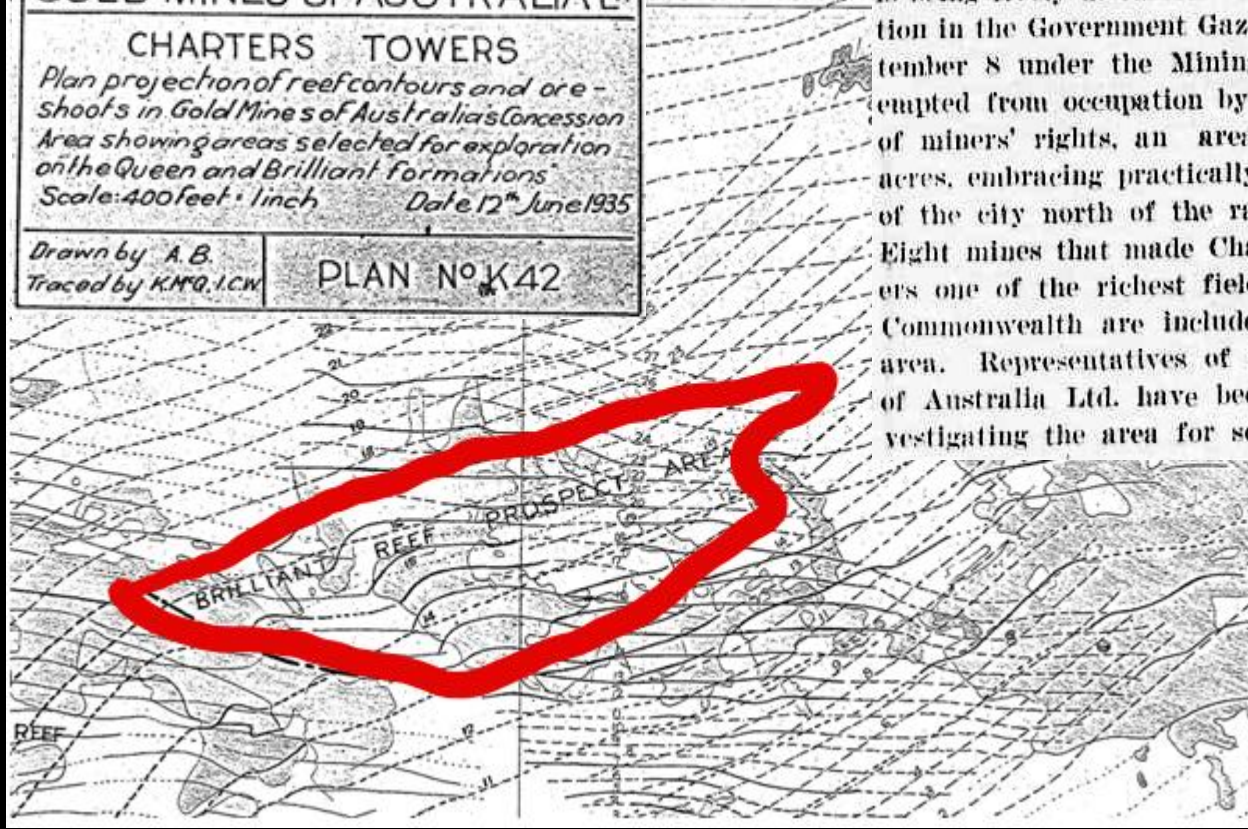
The possibility of Charters Towers gold mines being taken over and worked by the Gold Mines of Australia Ltd. is being freely discussed. A proclamation in the Government Gazette of September 8 under the Mining Acts, exempted from occupation by the holder of miners' rights, an area of 3250 acres, embracing practically the whole of the city north of the railway line. Eight mines that made Charters Towers one of the richest fields in the Commonwealth are included in the area. Representatives of Gold Mines of Australia Ltd. have been busy investigating the area for some time.

- Low gold prices kept the field closed after the War.

**GMA investigated re-opening the mines.**

**Famous geologist H J C Conolly recommended reopening the mines to test for shallow high grade ore.**

- Funding was expected from Mt Coolon mine but strikes led to its closure.



# 1970s & 1980s: GMA MODEL INSPIRED EXPLORATION



- **GMA had built a glass model of the mines with levels at ~30m intervals.**
- **Stored in Brisbane until 1970s National Trust renovations provided a home for the model in the Stock Exchange Assay Office.**
- **Preservation of the model allowed enabled a new generation of geologists to be inspired by the potential of the Goldfield.**
- **Relocated to Zara Clark Museum a decade ago it has been restored during 2021-2022.**



*Stock Exchange Assay Office.*



# 1980s: BIG COMPANY EXPLORATION

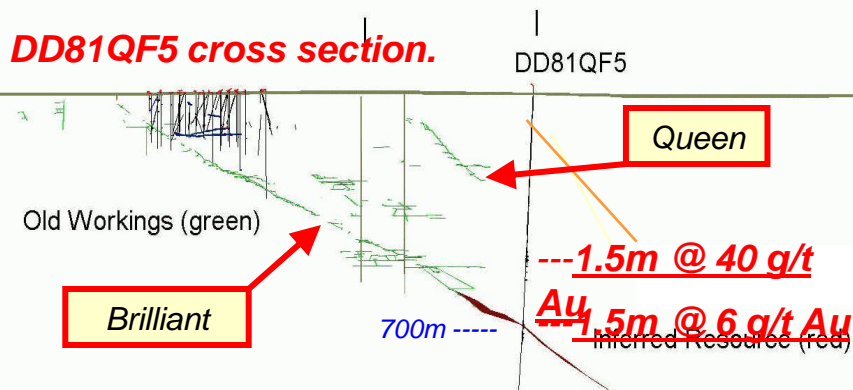


- **CRA (Rio) drilled the eastern city lodes 1981.**
- **BHP drilled the central city lodes 1981 – 1984.**
- **WMC drilled outside prospects.**

Section 424,000E - C5 Brilliant East

**CRA Drilling DD81QF5,  
New Queen Rd.**

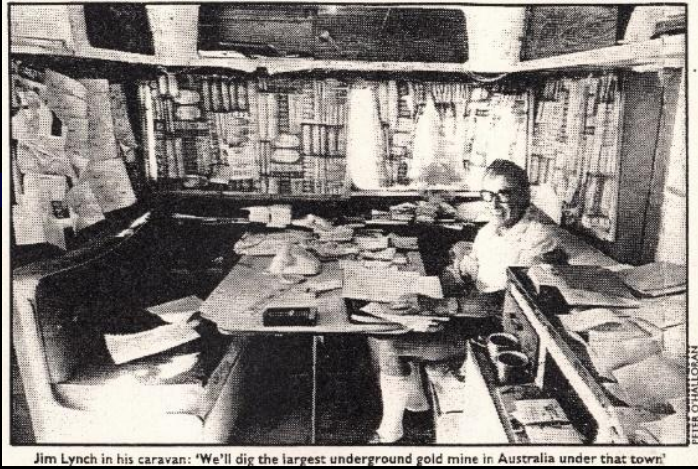
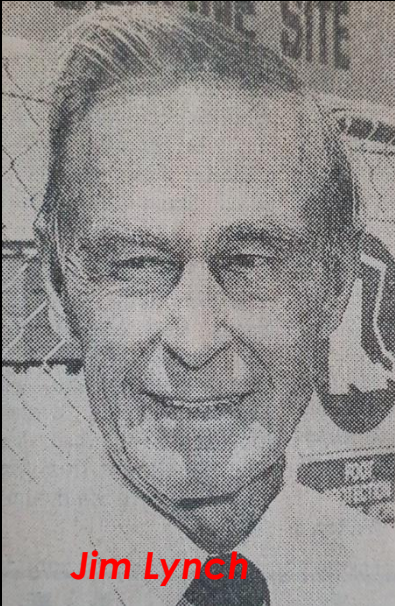
**DD81QF5 cross section.**



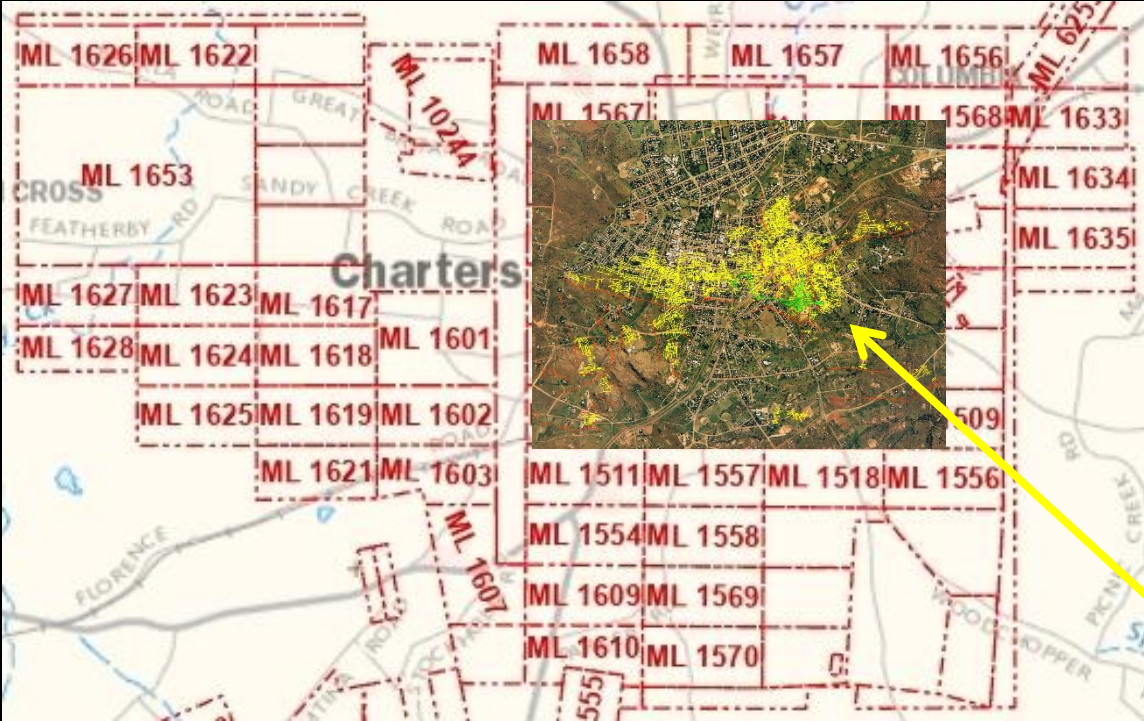
**Quartz vein in BHP's hole BD1 at 491m**



# 1985: JIM LYNCH'S LEASES



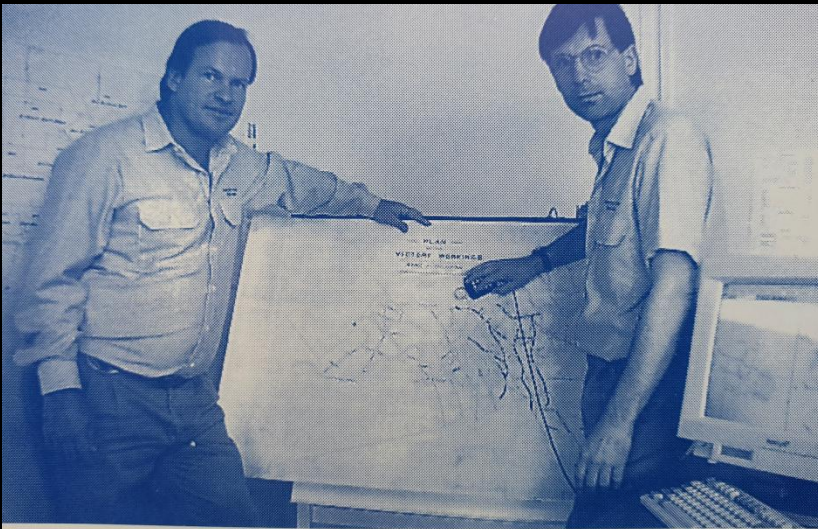
- Jim Lynch was a successful 1960s Nickel Boom entrepreneur.
- Down on his luck he moved to a caravan Charters Towers to live.
- BHP relinquished their ground and Jim saw his opportunity when freehold mineral rights were cancelled in 1985.
- He pegged mining leases over the whole Goldfield.
- Resurrected his nickel companies to redevelop the gold mines.



Underground Workings



# 1985-93: COMPUTER DIGITISED MINE MAPS

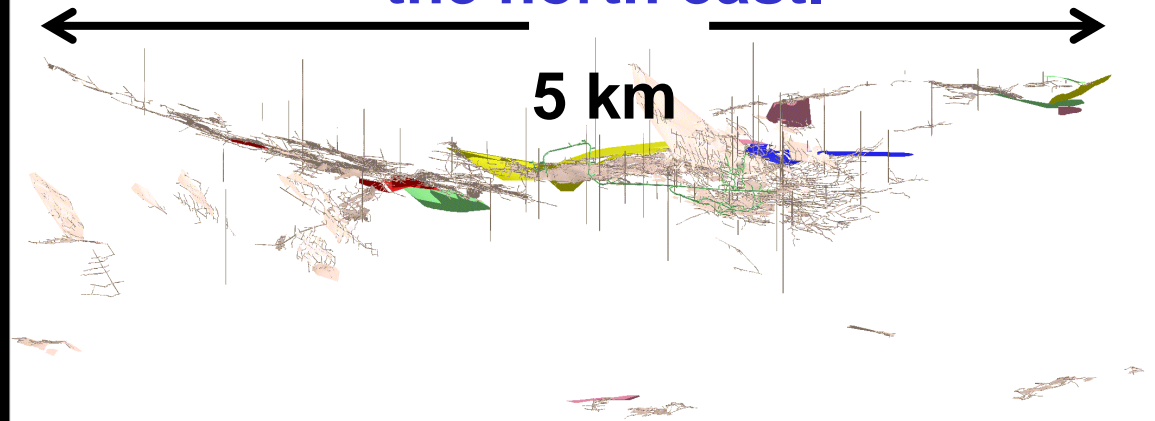


Kevin Richter, Exploration Manager and Jeremy Lovelock, Information Systems Manager working on the 3D reconstruction of the underground gold workings that we plan to explore.

- **Charters Towers Gold Mines N.L. digitised the historic maps.**
- **Produced 3D models.**
- **Assisted confident mine planning.**

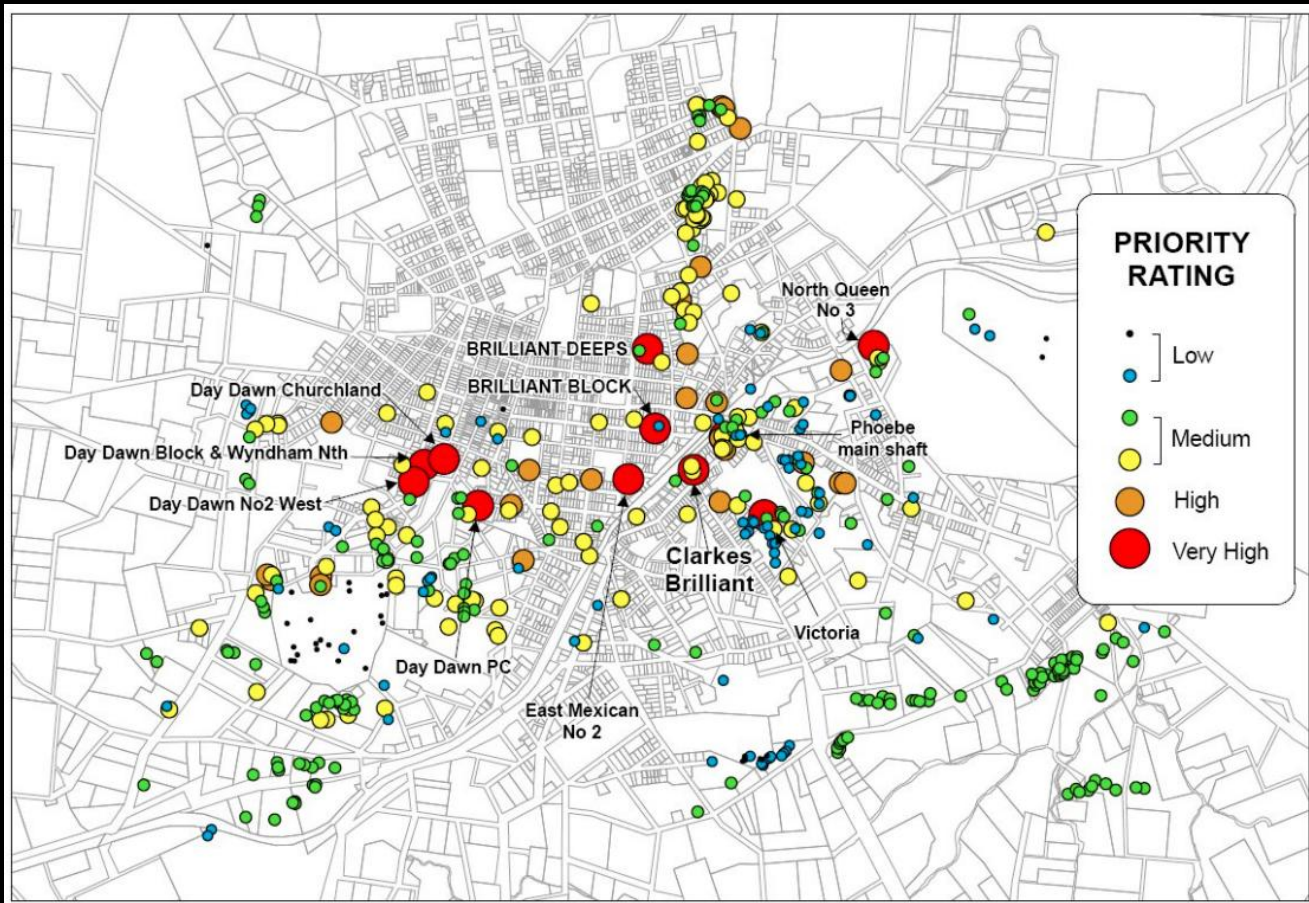
- **Enabled rotation of the model to understand lode relationships.**

**3D view looking obliquely down to the north east.**



***Showed that the gold lodes are part of a vast interconnecting ore system.***

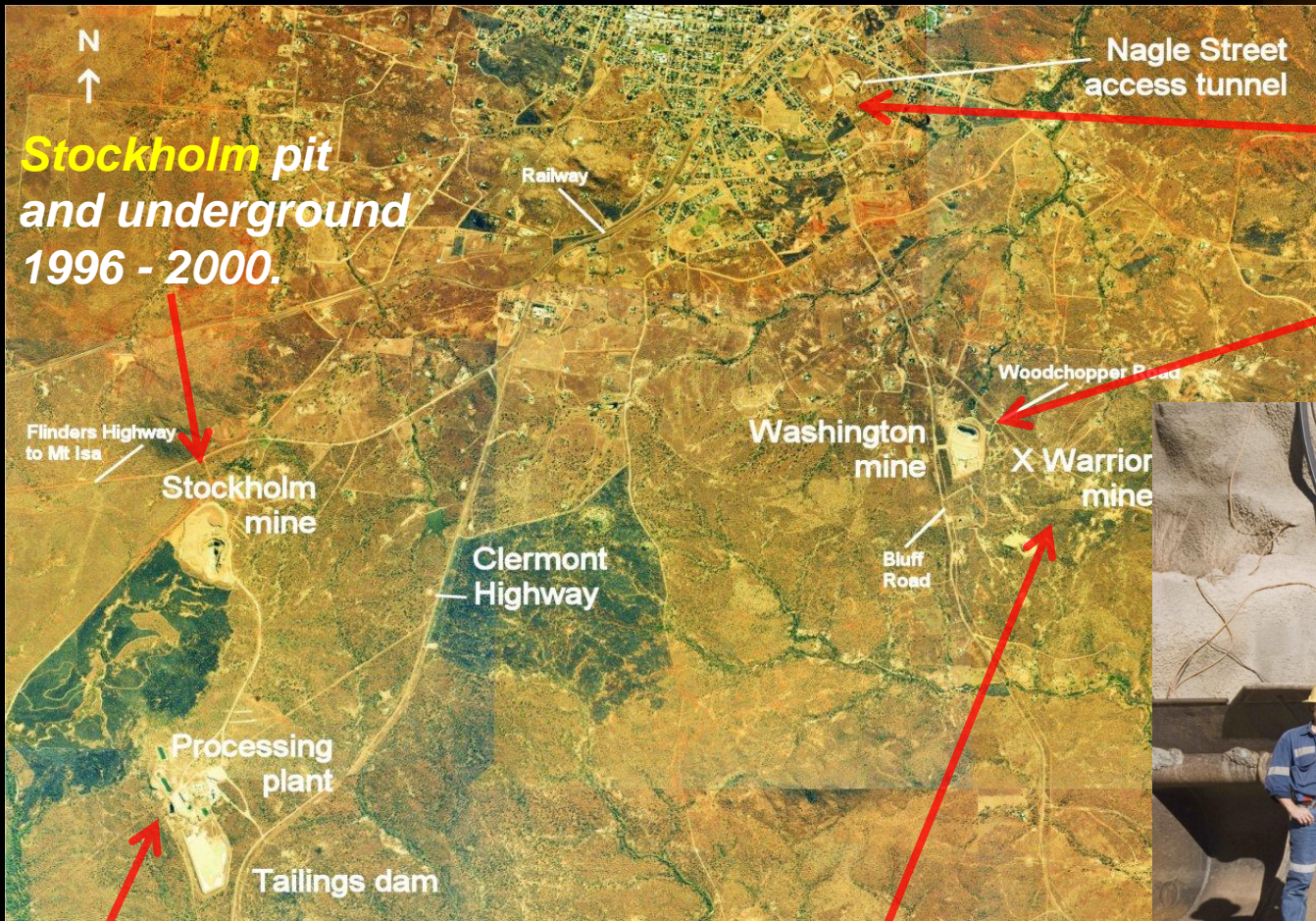
# 1996 ON : SHAFT REPAIR PROGRAM



- **Shafts collapsed when old timber caps rotted away.**
- **1,160 actual and potential shaft sites have been catalogued within the Charters Towers city limits area.**
- **More than 400 shafts have been made safe since 1996.**

# 1994 TO 2016: MINING REVIVAL

- 3 open pits and 4 underground mines.
- Production 105,000 oz gold (AUD\$ 2022; ~\$270 million)



**Central Decline**  
underground 1994 – 2000.

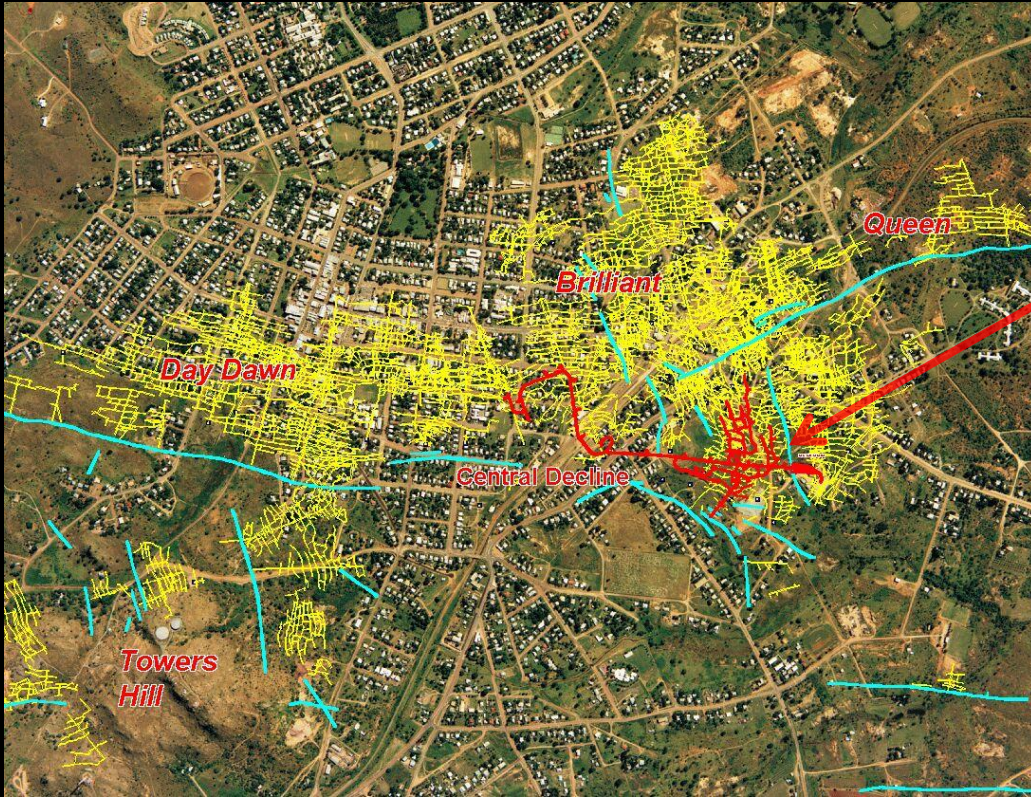
**Washington pit &  
underground** 1999 – 2000.



**Black Jack pits  
and treatment  
plant** 1996 – 2016.

**Warrior East** underground decline access from Washington  
2006 – 2016.

# 1994: CENTRAL DECLINE DEVELOPED



- Charters Towers Gold Mines Ltd floated in 1993.
- Enabled development of a 1.6 km long inclined tunnel.
- The “leavings” and extra ore close to the decline were not enough to fund planned access to deep the potential.

*Victoria development level through old stopes.*

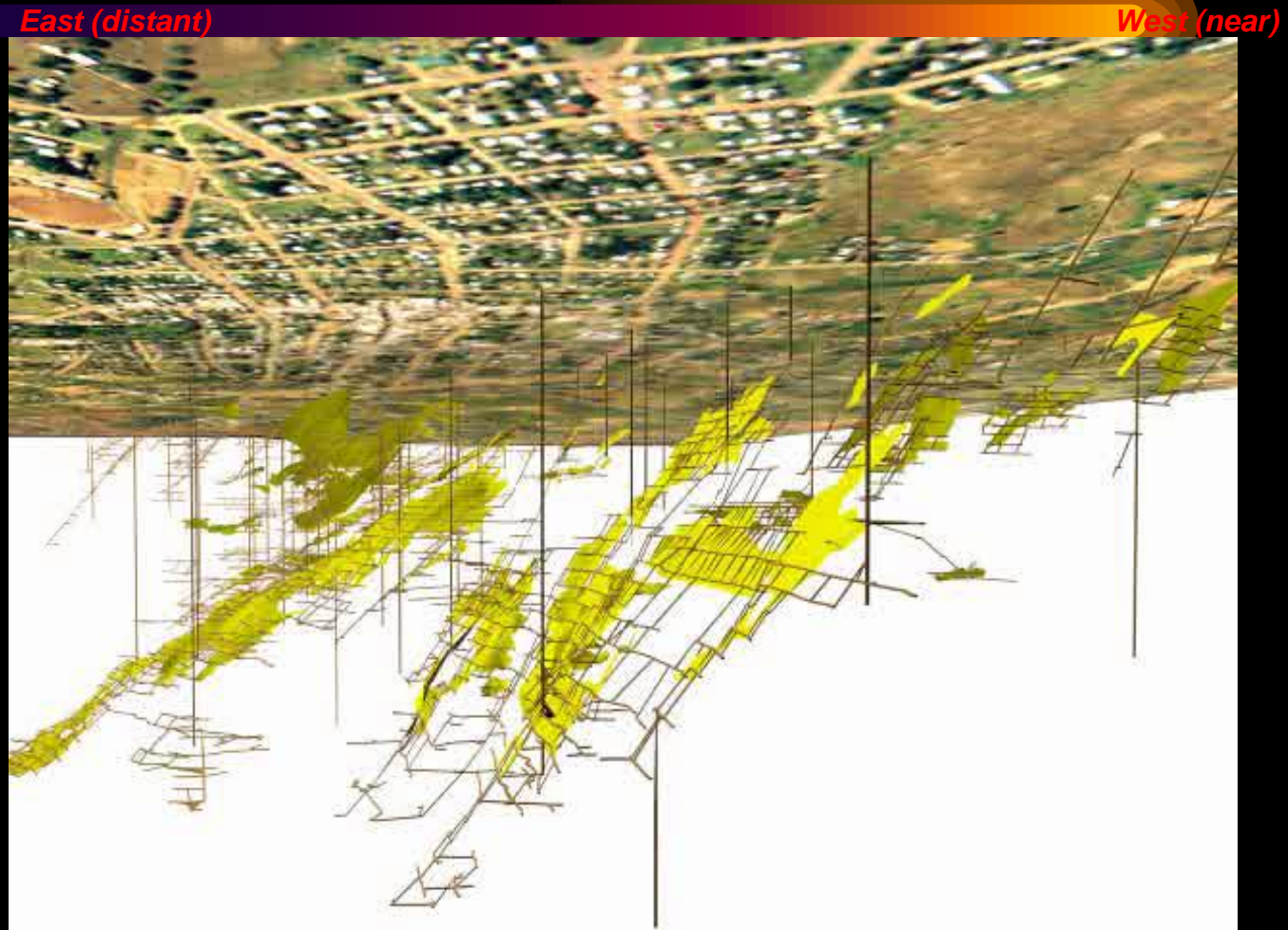


*Developing the Decline.*

# 2001: CITIGOLD 3D FLY-THROUGH

## WORKINGS VISUALISED AS MOVING IMAGES

- Video fly-through looking east at ~300m below surface.
- Reversed aerial photography overlay.
- Shafts and underlies (brown).
- Main gold extraction zones (yellow).



- **Warrior Decline first blast  
March 2004**



**ANY  
QUESTIONS  
?**