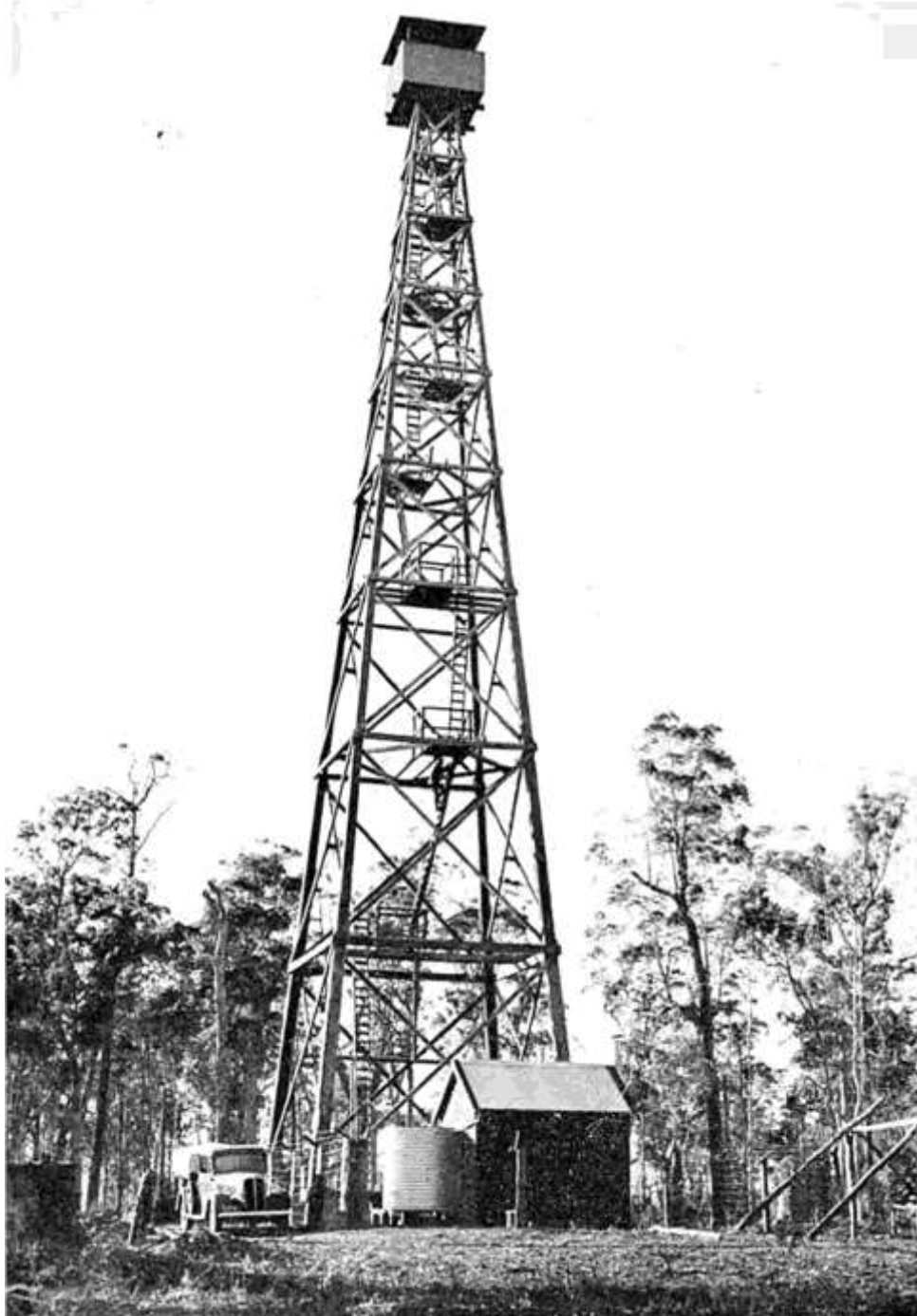


The fire towers of Western Australia, and the Forests Department  
Conservators who made them happen

1920-1970

*By Max Le Clercq*



## Introduction

This book is for Western Australians who may wish to learn something about their fire tower history, or for other Western Australians who don't know half as much about their fire tower history as they might otherwise think they do.

It's a book for any other non-Western Australian Australians who have a vague idea that Western Australia exists, but who would probably be hard pressed to recite much of substance about this strange, far-off land and its inhabitants that they share the continent with.

It's also a book for non-Australians the world over who have an interest in fire tower history, and who may not be aware that the Australian continent has two sides to it, despite anything they may have heard to the contrary.

Finally, it's a book for anyone who just enjoys reading a good and interesting story. Welcome all.

The reader will note already that it's a book only because the author says it is - less charitable people may simply call it a very large electronic file. The author has no interest making information more difficult to access than is necessary, and so has made it both (a) free, and (b) easy to share.

It has no Index, but because it's an electronic file the reader can simply use the search function of their software to locate any specific tower that is of interest to them.

The book traces the story of Forests Department fire tower development in Western Australia, using as its framework the four Conservators who ran the organisation during the period under discussion. The Forests Department now no longer exists as a government entity in Western Australia, with its surviving records now largely shared between today's Department of Biodiversity, Conservation and Attractions (DBCA) and the State Records Office. If the reader's interest is in anyway piqued to know more than what is covered here, then either of those organisations should be the first port-of-call to further their research.

As a book, the aim is not to be a 'stand-alone' resource, but to mesh with others.

This website:

<https://www.firelookoutsdownunder.com/index.html>

is Australia's pre-eminent public source of information on fire lookouts, and contains many photographs, anecdotes, and ancillary information about individual lookouts. The reader is strongly encouraged to seek out the website to see what is available. The site treats lookouts as individual subjects, whereas the purpose of this book is to tell an overarching story, find commonalities and patterns not apparent by looking at individual structures in isolation, and to leave the reader with a sense of understanding the 'bigger picture'. If the reader closes the book after finishing it and says something like "Oh yeah - I get it now", then the author will consider he has more than done his job.

The book *Lookouts of the Karri Country* is the obvious companion resource to this book. Written by Dave Evans in the 1990s, it covers what are broadly classed as the tree lookouts of Western Australia. The two stories overlap, and Dave's book is a treasure trove of information not only on tree lookouts but many other facets of Forests Department activities of the period. The book is no longer in print, but the DBCA Library has a hard copy. Readers of this work may wish to petition the library to encourage them to digitise their copy so it can be made available more widely.

Special mention is also made here of a digitised resource held by the DBCA Library - 'Forest Administration in Western Australia, 1929-69' by D.W.R. (Don) Stewart. It too contains a wealth of additional information which would, I'm sure, interest a reader. It may be located here:

<https://library.dbca.wa.gov.au/#record/3338>

(link active in January 2023 - if it is subsequently altered after this book is released then the reader should search the library catalogue for the above title instead).

This book comes with an edition number on the front cover. Should sufficiently valuable new information subsequently come to the author's attention the sections in question will be updated and a new edition issued. Always check whether the copy you have is indeed the latest version before submitting any suggestions - it may have already been done. The author may be contacted here:

[max\\_le\\_clercq@hotmail.com](mailto:max_le_clercq@hotmail.com)

An alternative contact path is via the previously-mentioned *Fire Lookouts Down Under* website - check that website for details.

Finally, the reader will note there are no attributions for the various photographs used in the book. As this is a book from which no financial gain is sought, and which is about nothing more than freely supplying information to as many people who may wish to know it, I have not bothered supplying this detail here. All are, I believe, either on display or 'in storage' after having permission received for their inclusion on André Belterman's lookout website. Should anyone be aggrieved with a lack of any acknowledgement here, send your lawyer's letters or similar to my e-mail address for a resolution.

Enough of the talk; it's now time to get the action started...

*Front cover photograph: Glenoran Tower*

## About the Author

The Author was born in Melbourne, Victoria in 1959, and has no known genetic, personal, or work-related connections to the old Western Australian Forests Department that he is aware of.

He is tertiary qualified in both Extractive Metallurgy and Marine Biology, and has made a nuisance of himself with both of those paying pastimes in Australia and also Africa over many decades.

With an abiding interest in many facets of Western Australian history, he came obliquely to this topic of fire lookouts several years ago when researching the now-defunct Somerville (Applecross) pine plantation, the old boundary of which he lived quite near to at the time.

This led to what has been a long and fruitful association with the website *Fire Lookouts Down Under* and its creator André Belterman. Driven by what he saw as the appallingly sparse coverage of Western Australian fire lookout history on the website - caused in no small part by a lack of contributors, and with an almost obsessive form of state-based nationalism to out-do any and all Easterners having likeminded interests where they live, he has spent many happy hours, and some unhappy ones, researching the subject and supplying the material that was gathered to André's monumental, ongoing electronic work. This book is the logical extension of all that effort.

The Author lists among his hobbies "complaining about the share of GST monies that Western Australia has stolen from it", and "going to Perth Airport to sit and watch Easterners get on planes and go home". He is also partial to giving unsolicited old-man rants on an eclectic range of subjects.

His philosophy of life may best be summed-up as; *"It isn't important where you were born. It's where you die that counts"*.

Readers are strongly encouraged to choose wisely which parts of what he has to say that they should be taking seriously.



***A 2003 photograph of a younger, healthier, and way more sexually-desirable author, interfering with the natural beauty and wondrous views to be had from Diamond Tree lookout, south of Manjimup.***

## **Chapter One**

**Charles Lane Poole**

## The story before the story

*Charles steamed out of Fremantle on 16 March 1922 alone, six years after he had arrived with Ruth. Forestry was not established. The politicians had failed his ideal. Democracy itself was at fault, he would later say. However, this Western Australian chapter should not close solely on his bitterness, nor should we see him as having failed.*

*The Royal Commission turned out to be no government whitewash because its Chairman, (William) Pickering, went into the questions thoroughly, heard the evidence of 133 witnesses, took the trouble to attend the next Interstate Forestry Conference in Brisbane, and visited forest services in the Eastern States. Its twenty-nine recommendations vindicated Charles' endeavours to regulate Millars and introduce systematic forestry. The Commission commended Kessell's administration of the Forests Department, and it was Kessell who reaped the benefit not only of the Commission but also Charles' work. Kessell's ability, easy Australian manner, political skill and patience enabled him to establish forestry successfully in Western Australia, yet it was Charles' very intransigence and refusal to compromise that altered the political landscape in a way that made forestry possible. Kessell, writing his first annual report a few months after Charles had sailed, admired him as 'a man of clear vision and high ideals who strove successfully to lay the foundations of a sound forest policy'. It was a considerable achievement.*

from: *The Zealous Conservator: a life of Charles Lane Poole* (p.77)

*John Dargavel*

For a book about fire lookout towers and the Forests Department Conservators who made them happen, this must appear to the reader to be an odd place to start the story - the first Conservator leaving the stage even before he's been introduced, and with no fire towers in sight.

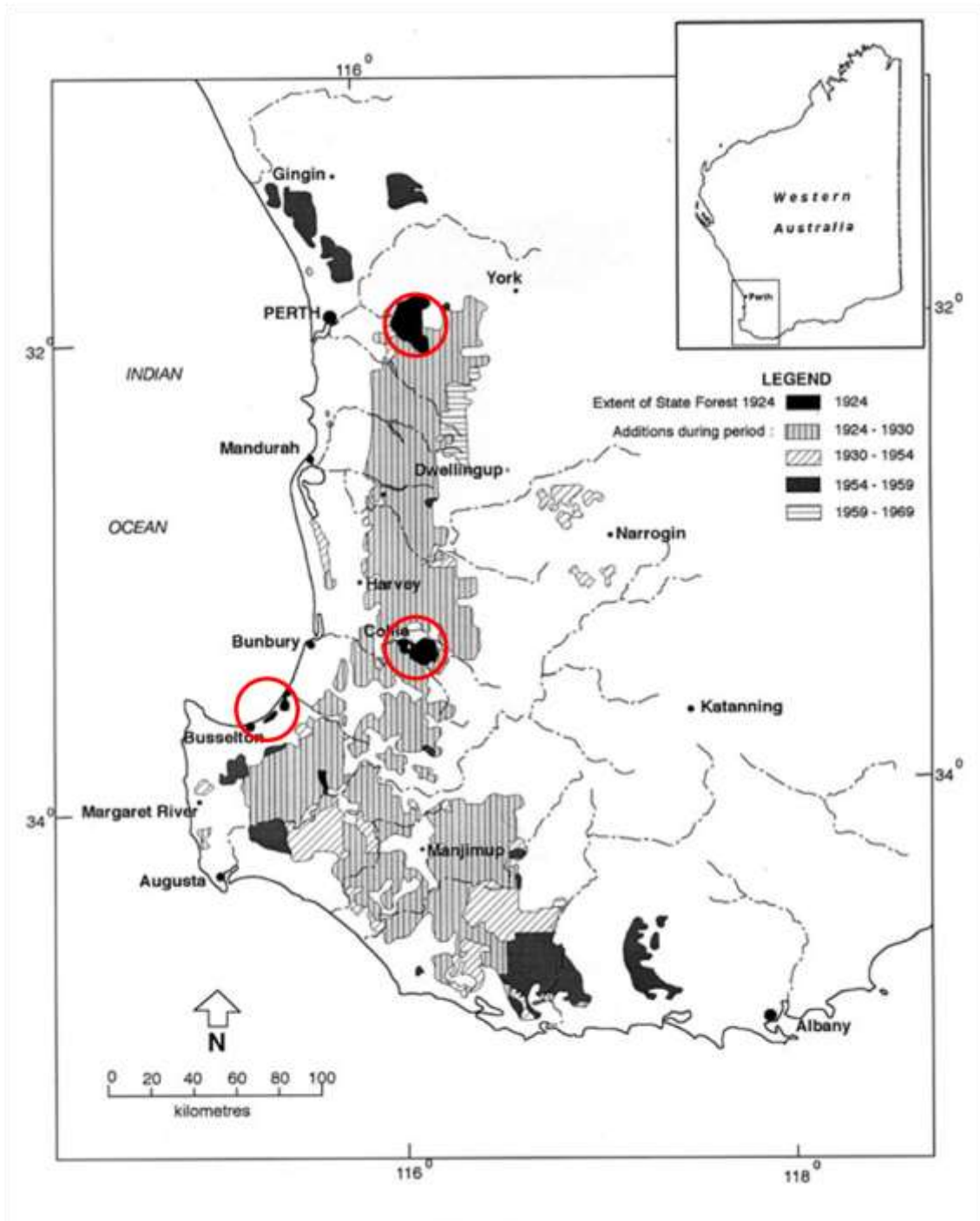
Charles Lane Poole actually had two fire towers to his credit, but as he sailed out of Fremantle that day in early 1922 the paint on them was metaphorically still drying - we'll get to them shortly. The name "Kessell" is a mystery to the reader at this stage, but you'll definitely be hearing more about Stephen Lackey ("Kim") Kessell in the pages that follow.

Charles Lane Poole became head in 1916 of the forerunner organisation to the Forests Department, the old Woods and Forests Department, which has roots going back to the last years of the previous century. His achievement in getting a Forests Act passed by the Western Australian Parliament is an accomplishment far more important than any fire towers being built during his reign, and as is inferred above, he trampled on a lot of toes, and irritated a lot of politicians to accomplish it.

It is not the job of this author to write a book that's already been written (excellently written), and the reader - if he or she is interested - can learn of Charles Lane Poole's time in Western Australia - and his legacy, by reading particularly chapters 4 and 5 in the above-quoted work by John Dargavel.

## The story

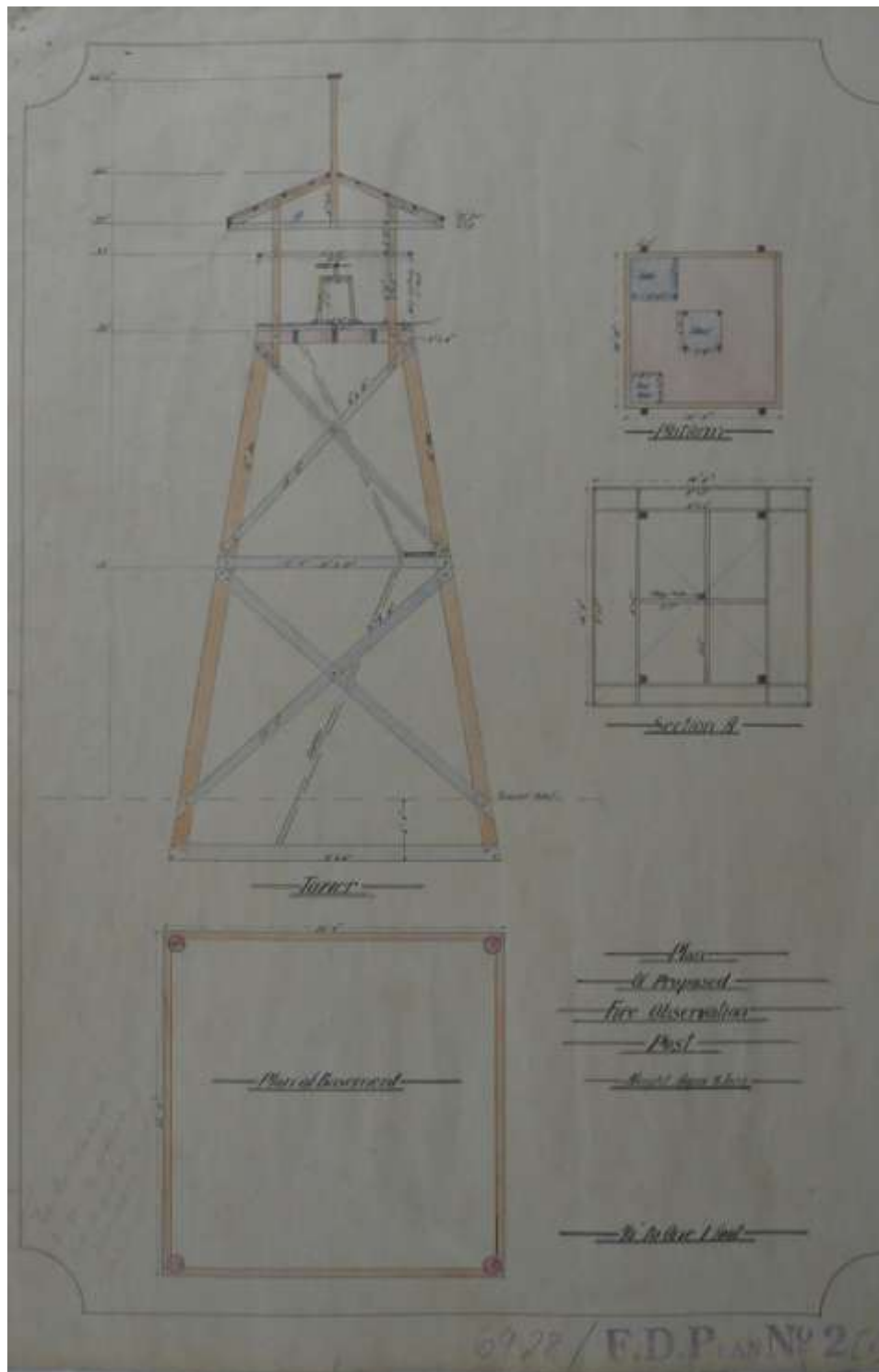
We are in 1921; two years after the Forests Act had been passed by parliament. Here below is a map of the years when additions were made to the forest estate:



The reader will spot the problem. In 1921, only those areas marked with red circles (the Mundaring area, areas near Collie, and the tuart area north of Busselton) are declared State Forest. Just where the new Forests Department can operate is a question with a very limited number of answers.

## Mt Gunjin

We know fire detection was a priority for the new Forests Department, because of the many hundreds of plans the organisation produced over the decades to come, a fire tower was the subject of only the second one ever drawn. A copy of F.D. Plan No. 2 is shown below:





It is an odd design in many ways, and the author has often wondered where the inspiration for it came from. If any reader knows of a similar type of design (in Australia or beyond) which preceded it - and which may have been known to the designer, that information would be welcomed.

Having two sections to traverse through before the towerman reaches the observation floor, the ladderway rises *diagonally* within the confines of the legs, with a small landing/change of direction platform located in the *corner* of the first set of walings (the four horizontal timbers which demarcate the end of the first section). Similarly, the next ladder is also 'diagonal', and the observer enters onto the observation floor in the opposing corner at the next level.

What makes this design even odder is that there is no solid wall around the observation floor - just a single railing set at a height 5ft above the floorboards. To be clear - 5ft is close to about shoulder height of a standing man. In effect, the 'cabin' of this first attempt at tower design is a virtual open platform 30ft up in the air. The observation floor was 10' x 10' square, and in another corner to the one where the trapdoor was stood a 3' x 3' 'table'. The only other feature was a 2' 6" square 'stand' on which a rangefinder was positioned.

The roof was an incredibly solid structure of 'pagoda-like' appearance, and must have weighed a fair amount. It even came with a rooftop flagpole.

The legs extended 4ft below ground level. The plan suggests that a square of ground was to be excavated down to this depth rather than making individual holes for legs, as each leg is joined to the two adjacent legs by tie-rails also located 4ft below ground.

According to the plan, the whole structure was estimated to weigh approximately 8 tons.

Gunjin, by being the first tower lookout constructed, has often been used when illustrating Forests Department articles about towers. The pictures below come from a 1925 newspaper article, and show that already an addition has been made to one side of the roof - a change that the author has never been able to establish the purpose of. We will get to men and their heliographs quite soon.



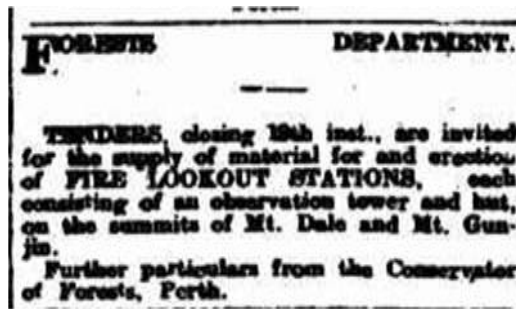
The Forestry Look out Tower at Gunjin.



A patrol officer operating a heliograph in the bush near Gunjin.

PROTECTING OUR FOREST WEALTH FROM FIRE.

Gunjin was advertised for tender at the same time as the second tower, Mt Dale, as the following advertisement placed in Perth newspapers in July 1921 shows:



It is assumed that both projects commenced about the same time, and both were to be built according to F.D. Plan No. 2. If so, we have now reached the first of many - to borrow from the rich lexicon of Donald Rumsfeld - 'known unknowns', because they ended up different.

### Mt Dale

Ostensibly the twin of Gunjin, Mt Dale seems - for reasons which have never been uncovered, to have charted a different course. True, the framework below the observation area seems to be identical to that of Gunjin, but there the similarity stops. It ended up looking like this:



A lighter, sloping roof and a 'cabin' which now looks like a cabin - enclosed (to differing heights) on all four sides. The flagpole appears to have gone missing too.

The question is, how (and why) did this manage to happen when both were supposed to be erected from the same plan?

There is the possibility that Dale actually had its own, modified plan, but this is now lost from the surviving archives. Many plans are no longer extant from the Forests Department series, and there are many gaps in the numbering of those that do survive. This begs the further question of what it was about Gunjin that required a redesign? Leaving aside the obvious fact that Gunjin isn't a particularly good design, and appears to have been drawn by someone who would have never actually had to use it; an additional factor may have been the weight of the Gunjin roof - an elaborate, 'showy' style which seems to lack practicality. If you decided to add weight by adding walls to the cabin it stands to reason that you would need to remove weight from elsewhere. This is merely speculation, but it is speculation trying to explain an actual event - a tower which should have, by rights, been built concurrent with Gunjin to the same plan, actually ends up looking different. Regrettably, no known documentation survives from the era to resolve the conundrum.

### **Every network has to start somewhere**

Gunjin and Dale were separated from each other by about 15 miles, with Dale to the south-east of Gunjin. Roughly speaking, a straight line drawn between them ran parallel to (but south of) the alignment of the long, thin Mundaring Reservoir which supplied the water for the Goldfields Pipeline Scheme to Kalgoorlie. The first two 'pegs' of what will develop into a network of towers covering the Darling Scarp had now been metaphorically hammered into place and would henceforth influence the positioning of all the towers that followed.

Many times in ensuing Forests Department Annual Reports over the years a figure of 'about 15 miles' is regularly quoted when describing how far apart the other (yet to be built) towers should be sited from each other. It is true to say that the Gunjin-Dale binary system seems to have cemented that rough figure in place as a good guide at the first attempt.

It is not known if Charles Lane Poole ever inspected the two lookout towers built during his tenure.

### **Who Ya Gonna Call?**

A 'retrospective' piece from the 1962/3 Forests Department Annual Report:

*As early as 1924 a start was made in erecting telephone lines between forest headquarters and the few lookout towers then in existence. Heliograph was also used to keep in touch with working parties and survey teams. By 1929 a serviceable single wire earth return system had been developed and it is upon this system that the present network is largely based. Telephones were obtained originally from P.M.G. (Post-Master General) disposals and one of these inspected after many years of useful service, was recorded as having been serviced by a P.M.G. technician as far back as 1896.*

*Telephone is still the principle medium of communication in our forests and apart from the P.M.G. system we have a network of some 2,000 miles of line servicing 480 telephones.*

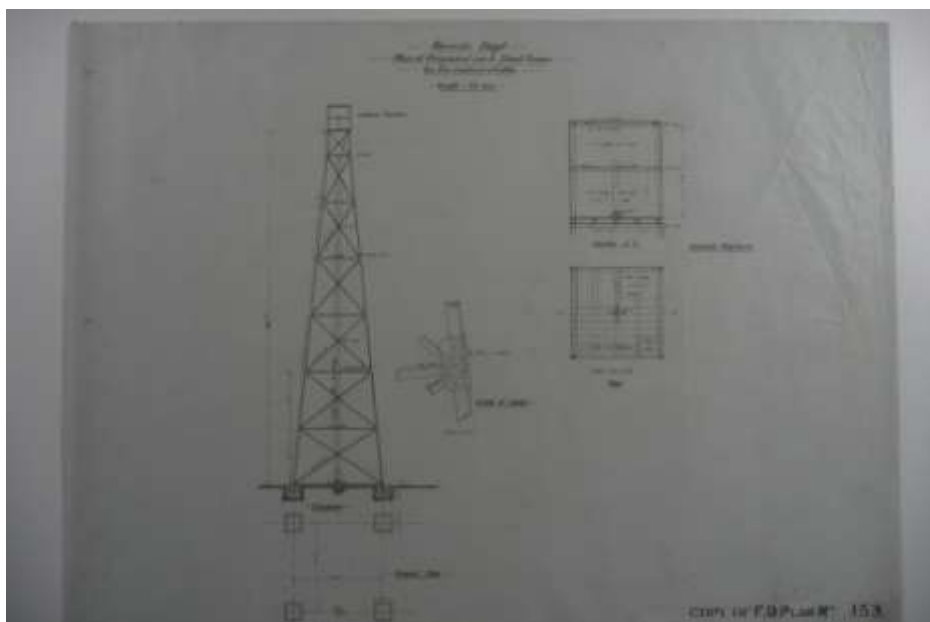
This very brief summation of the Forests Department internal telephone system serves to draw the reader's attention to an important consideration; sighting a fire in the forests is good, but only if other people better situated to respond can be apprised of what you've just noticed, so it can be dealt with. Towers are excellent - but they have to go hand-in-glove with a communications system. As can be seen, for the first decade or so after Gunjin and Dale were operational the chances were pretty good that an aptitude for heliograph operation would have been highly prized in an employee.

For the reader's interest, the quoted 1962/3 figure of 2,000 miles of Forests Department-built telephone line is equivalent to more than *four round trips* Perth-Albany-Perth by the most direct route. The Forests Department strung an awful lot of SWER (Single Wire Earth Return) telephone line through the forests of Western Australia over the decades.

It is unfortunate that the Forests Department or any of its successor organisations has never acknowledged with a book this great communications achievement. Together with the later developments in radio communication (at different frequencies) it is an untold story.

## **Sliding Doors**

The premise of the motion picture 'Sliding Doors' is that of a moment in time where two possible outcomes can occur and, through the magic of film, both are entertainingly explored. We now come to the moment in Forests Department history when the future as described in this book could have been very different. The following is F.D. Plan No. 153 held at the State Archives:



It is titled "Plan of Proposed 100ft Steel Tower for Fire Lookout at Collie". It was never built.

The plan is undated, but as the third Forests Department lookout tower was first manned on the 5<sup>th</sup> of April 1923, it strongly suggests some time in 1922. The extent of Charles Lane Poole's involvement in the project during initial conception is unknown.

Here was a case where we are only metaphorically minutes into the construction of fire towers in Western Australia, and the thought of using a construction material other than wood has made it onto a speculative plan. The reason for those involved on the project considering steel is not hard to work out - on the plan it states "Weight - 6¼ tons". It will be remembered that the recently-erected 30ft wooden Gunjin was estimated as being 8 tons.

Why the decision was taken not to advance this steel tower concept is not recorded in any surviving documentation, and only ten plans later (F.D. Plan No. 163) an 80ft wooden design is drawn which will be the form that the Collie tower would take. Steel is then seemingly banished from any Forests Department thinking as a tower material for the next four decades, and a fleet of wooden towers will now be erected the length and breadth of the Darling Scarp and beyond in the years that follow. It was indeed the Forests Department's "Sliding Doors moment".

### **Dear Diary...**

Very little information has survived from the Forests Department activities in the early years of the 1920s. We are thus incredibly fortunate that John (J.H.) Currie's work diary from the age still survives today, and is kept at the DBCA Library. John at that time was a 17 year old indentured apprentice who would ultimately go on (from 1936 until 1970 when he retired) to be a forester at Dryandra. As a young man 'learning the ropes' he was, it seems, encouraged to write a work diary where he recorded the various parts of forestry as he was seconded to different divisions as part of his training and experience-gathering. The (uncorrected as to grammar, spelling etc.) section of his diary from 1926 concerns his time working at Collie, and although jumping ahead of the timeline of this book slightly, is reproduced here as an invaluable first-hand introduction to the third tower built - Collie-Lucknow. This narrative was written three years after its construction and first manning:

#### *Fire Tower*

*From District Headquarters the Look Out Tower is about 4 miles South West as the crow flies. This tower is built on a high ridge, the structure being 80' high. On top of the tower (i.e. the look out portion) a range finder is fitted up. It is a large Naval pattern, manufactured by Barr and Stroud. This range finder has a graduated base so that the degree can be obtained as well as the range in yards. The next storey down from the look out is the wireless cabin, which was built last year for that work. I will write notes on the construction of the tower later.*

### *Telephonic Communication*

*A telephone line connecting the Tower with Mungalup Block, District Office, and Harris River Camp, was constructed just after the tower was built. This is a single line made with No. 8 gauge galvanised wire, and is run for some distance on trees.*

*There is a separate telephone installed in the office, which connects with the Exchange. By this, messages can be sent to the Westralia Mines office for Foreman Wilson and to Shotts Post office for Foreman Read, as they are not connected with our private line. These men call at the above places at specified times and receive any messages which may have come through.*

*The telephone calls in morse code on our private lines are as follows:*

*Office   .-                   Assistant Forester Giblett's house   -.-                   Tower   -*  
*Mungalup Block   ....                   Harris River Camp   ---*

*A dot is one complete turn of the handle, a dash is three complete turns of the handle. The tower rings up District Office at 8.15 am, 11.15 am, 2.15 pm & 5.15 pm & 6.30 pm giving the all clear signal, but may ring up between these times when a fire is located.*

*The Look Out man's work is as follows, on seeing smoke he immediately sights on it with the range finder and reads off the distance and the degree in which it lies. This he enters in the log book with the time observed. Having done this, he locates the fire on the plan provided for him, and on finding its whereabouts he enters it in the log book. He then rings up District Office and informs the officer in charge of the fire and its condition. (The message might be - Fire on NW corner of Compartment 6 Shotts Block 75°, burning strongly). The officer in charge immediately marks out his course of action. If the fire needs attention he sends a fire message by phone (if connected), telegram, messenger, or wireless, as the case may be. The foreman in charge of the block on which the fire is burning act in accordance with instructions received in the message. The message to the foreman might be "Foreman Read Shotts Block, Fire Compt 6 75° burning strongly. Please investigate and report procedure. Officer in Charge"*

### *Heliograph*

*Heliograph communication was brought about last month. Foreman Read, Powell and (?) Beaver hold heliograph communication with the tower at specified times during the day.*

### *Wireless*

*Successful results have recently been obtained with the wireless method of sending fire messages. At present the transmitting machine is at Collie Head Quarters and there are two 2 valve receiving sets in working order, one at Shotts with Foreman Read and the other at the Proprietary Block Compt 5 with Foreman Powell. The fire messages are broadcasted at 8.30 am to 8.45, 10.00 am to 10.15, 1 pm to 1.15 pm, 3.15 to 3.30 pm, 4.45 to 5 pm. The message is repeated 4 times at intervals of 5 minutes. So that if the first message wasn't too clear the foreman could wait and hear the next to make sure. It remains to be seen whether this method is to be relied upon.*

*Owing to the long dry spell which has not yet broken, many large fires have recurred round and about the district. Casual labour has been used continuously during the month and it has cost a considerable amount of labour and money to keep the fires subdued. Several gangs of men are sent daily by car to fire scenes.*

*The main causes of fire outbreak are holiday makers with their camp fires, kangaroo hunters, thoughtless boys, bush and railway locomotives, smokers, and people burning off. The damage done by fire has been in the past of great extent but at present they have been kept out of the protected area and little damage done to regeneration.*

#### *Firebreaks*

*Large areas which have been burnt in preliminary burning last year act as effective breaks in case of outbreaks in unburnt areas. Tracks and external boundaries have been burnt along so as to minimise the fire danger in the district.*

*Propaganda has been carried out extensively in this district. Placards have been put up in conspicuous places along roads and main tracks and lantern slides have been shown in local theatre with a view to impressing upon the public their duty to the formation of the forests of the future.*

*J.H Currie (Apprentice)*

*1<sup>st</sup> Feb 1926*

Collie-Lucknow was a significant step up in Forests Department tower design. At 80ft high it was almost three times the size of the two previous builds. The unusual name pays homage to the old Lucknow Concession, which was worked by timber hewers and was also the site of a timber mill which burnt down in 1912, after which the area was abandoned by the South West Timber Hewers Co-operative Society who held the concessional rights. An early photo of the tower before construction of the cabin had been concluded is shown below:



Two notable features are (a) it was placed on concrete footings, and (b) the ladder was in the form of a 'zigzag' moving backwards and forwards through the centreline of the tower. This zigzag design required a small landing at the mid-point of each waling the ladder ascended to, where a full 180 degree change of direction was made by the person ascending to commence the next part of the ladder climb. The ladders for the first three sections were supported with an additional timber which ran between adjacent crossbeams and passed under the mid-point of the ladder. Every set of walings was braced with a corresponding set of dragon ties 'inside' the tower legs - it was a very impressive structure in terms of its rigidity, and a step up from the degree of design and workmanship of its two forebears to the north.

Compared with Gunjin and Dale, because there was no other tower in the vicinity (due to the limited amount of State Forest which had been declared at that stage around Collie), it operated unlike the two aforementioned towers - it needed to perform fire spotting duties without the benefit of any possible confirmatory cross-bearings from another fixed lookout point. Until the rest of the tower network eventually 'caught up' and arrived from the north, it would remain a lonely sentinel 'way out in the sticks'.

John Currie remained at Collie into 1927 and his monthly diary entries continued. He went back to the same subjects several times as his knowledge and confidence grew, and a few random snippets from times later than the above entry are included here:

*It is unfortunate, now that the scope of operations has expanded, that the site for the tower was not selected to embrace more country. As it is, the view is only open from the N.E. to the S.W. sectors, the remaining portion of the view is restricted to a distance of 2 miles, owing to the presence of a range of hills slightly higher than the tower. However the tower as it is at present commands an extensive view to the North and East, and looks over the Westralia, Arklow, Proprietary, Shotts and Cardiff blocks and a portion of Mungalup block.*

*Mt Saddleback which is 34 miles distant can be seen quite distinctly at a bearing of 35°.*

and

*The foundation consists of four cement blocks 4' x 4' x 4'. The legs rest on the bottom sills so that the weight is evenly distributed over the 4 blocks. The legs are securely anchored by means of iron straps which are set into the concrete blocks.*

*There are six sets of diagonal braces, which together with dragon ties and walings, makes the structure a solid and, taking into consideration the size of the material, lasting job.*

and

*In November 1924 a wireless cabin was put in on the last stage just below the lookout portion. Results obtained by wireless were not satisfactory mainly owing to the uncertainty of messages being received in the field. Some form of acknowledgement must be received before the method of communication can be utilized with any degree of efficiency.*

and



*This year the tower was manned on the 25<sup>th</sup> November. The date of manning the tower depends on the amount of dry weather experienced, and the corresponding condition of the bush for burning. When rain falls intermittently through October and November the undergrowth will still be green, and there will be little danger of a fire doing much damage. On the other hand a stretch of dry weather may set in about October and dry up the bush by the beginning of November.*

*In the Mundaring district the two towers are usually manned after the Xmas holidays, but this year it was deemed advisable, on account of prolonged dry weather to (?)use them a month earlier than usual.*

We are fortunate that a photograph (date unknown) was taken of the tower when it had the wireless room installation, and this is shown below (the first section below the observation cabin):



By being so tall and alone without nearby companions meant that Collie-Lucknow tower was a very important early 'test bed' for wireless technology. Although knowledge and technology available at the time meant it ultimately wasn't successful, it deserves to have its achievements in this field acknowledged. It is certainly a forgotten Forests Department trailblazer.

Finally, there is an interesting and very touching piece of human history associated with this tower as well. In a surprisingly rare personalised entry in the Forests Department's 1926-27 Detailed Annual Report for the Collie District the writer includes:

*“The Lookout Tower situated on Compt. 17 Mungalap Block was manned on November 15, by Mr Hans Lawson, who has carried out the duties of Lookout Man since the inauguration of the protective measures in the Collie district. The tower was manned intermittently during the whole of the summer, the longest period for which it was vacated being from March 7<sup>th</sup> to April 9<sup>th</sup>, while it was also vacated for several shorter periods as weather conditions warranted same”*

From the author’s research, it is known that Hans Lawson was born in Bulli (NSW) in January 1892 (so, in his mid-30s when this Annual Report entry was written), farmed at Moria Road Collie with his parents who emigrated to Western Australia, was wounded in action in France in May 1918 (“Bomb wound. Compound fracture left tibia & compound fracture right foot metatarsal” according to his war service records), had his left leg amputated in Reading Hospital, England in July 1918, and returned to Australia on board the hospital ship *Kanowna* and disembarked in February 1919.

It is not known how many years beyond 1927 Hans Lawson continued to man the tower, but it is a very nice thought to know that the original occupant of Western Australia’s tallest lookout structure of the time was an amputee, and one who made his way (slowly, you’d suspect) up and down those steps without fail every day during each year’s fire season to do his duty.

The tower no longer exists, but the foundations may still be found at the site as a sort of memorial:



The photo was taken by the author in October 2020. Like parents, authors are not supposed to have favourites, but as the reader may have already guessed, Collie-Lucknow is mine.

## Bonanza

The fourth fire tower would only be built in 1927, and this allows time to set the scene for what will come next. To do so, we now have to make a brief excursion into the murky underworld which is Western Australian politics.

The reader will recall the map on the second page of this chapter showing the area of land which was allocated to the Forests Department. Revisit that map, consult the legend, and note the massive increase in the size of the forests estate during the years 1924-30. This is the story.

When the Forests Act was passed during the time of Charles Lane Poole the state was run by the Nationalist Party (a grouping of conservative-leaning politicians now no longer in existence as a political entity), with a succession of premiers coming and going. Just after the Act became law the leadership passed to a certain James Mitchell. Mitchell was called (not to his face, obviously) "Moo Cow Mitchell" as he had a well-known preference for the agricultural industries over other things such as forestry. It was Mitchell who limited the areas granted to the newly-formed Forests Department in the early years, and who kept much of the remaining bush as Unallocated Crown Land (UCL), preventing any meaningful Forests Department involvement in its management. This was the cause of Charles Lane Poole's frustrations mentioned at the very beginning and led to a series of blazing rows between Premier and Conservator, and also played no small part in the Royal Commission also mentioned earlier. As has been stated, Charles resigned as a result of all of this and a man he had hired as the Working Plans Officer, Stephen Lackey ("Kim") Kessell, acted in the role from October 1921 until January 1923 after his departure before being offered the Conservator position. He was only 26 years of age when he obtained this high position within the public service.

A year later, Mitchell's Nationalists lost the state election, and the Labor Party under the leadership of Philip Collier assumed government - and they would remain in government until 1930 (elections at that time were held every three years, not the current four). Unlike Mitchell, Collier was very interested in forestry, and as well as Premier he also took the portfolio of Minister for Forests. Not for the first or last time in his career, Kessell was to be the beneficiary of some very good fortune.

During those Labor years of 1924-30 the reader can see from the map that Collier essentially unshackled the Forests Department by declaring (in stages over multiple years - not all at once) a huge area as State Forest and handing it over to them to manage. The days of a few scattered red circles were a thing of the past.

So, the first three towers all neatly fall into this short time when opportunity for tower construction was minimal, and fire plans centred on the Lane Poole model of 'Working Circles', whereby small areas would be extensively planned-for, and opportunity to think in broader terms was constrained by circumstance. As well as having Mitchell now out of the picture, Kim Kessell also was gifted a veritable bonanza of new lands to begin planning for. To an extent, this explains why there was only one more tower built between 1923 and 1933 - there was now just so much other work to do. It is also the reason why in a book where each chapter is ostensibly only about one Conservator, it is more convenient to place Kim Kessell into two - this one up until 1930, and then the chapter which follows. The reader can think of this chapter as including Kessell's 'slow tower-building period'.

## Wourahming

Mt Wells is its English-language name - the Indigenous people of the area referred to it as Wourahming. Located roughly east of Dwellingup, it was a prominent hill on the 'back' side of the Escarpment. Exactly why it became the site of the first tower once large areas had been ceded to the Forests Department from 1924 onwards seems to come down to it being in a location close to a number of 'Working Circle' plans that had recently been prepared which centred on the Pinjarra-Williams railway line only a short distance to its south. A bit like Collie-Lucknow, it was at that time an 'orphan' in terms of any nearby towers. In later years Mt Solus Tower would be erected roughly mid-way between Mt Wells and Mt Dale to help create part of the growing tower 'network'.

And like Collie-Lucknow, this would be a brand new design with no commonality with what had gone before.

And (luckily for posterity), Dwellingup District where it resided was also a place where John Currie worked during his training, and as such we have his diarised thoughts (from a slightly later time - 1934) to quote from to open the discussion:

*There are two lookout towers Mt Wells & Mt Solus which are constantly manned during the fire season. Mt Solus was only opened up last year (still in the future at this stage - it was erected in 1933) prior to this fires were picked up for the whole district from the one tower (Mt Wells) using a Barr Stroud Naval Pattern rangefinder.*

*This instrument could not be used with any degree of accuracy in latter years on account of dirty lenses which made visibility particularly of the lower field very indistinct.*

*The lookout man by this time however had become familiar with the country within his vision and could in most instances give a very fair estimate of the distance of a fire.*

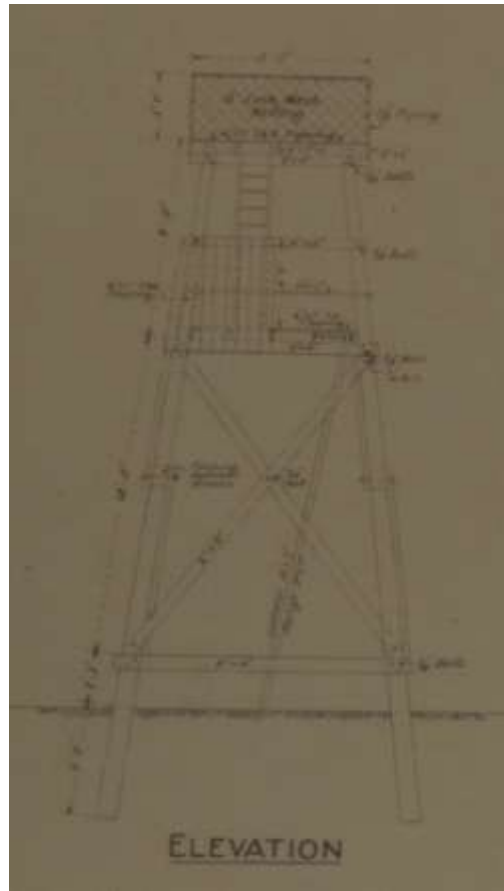
*On bad hazy days his view was in many instances limited to within a radius of a few miles from the tower mainly due to drift smoke from fires burning on country outside of treated areas. An effort was made last year to keep these external fires in check.*

*Efforts were more or less hampered by insufficient fire suppression strength & the repeated attempts of wilful incendiarists operating in country miles from anywhere. If trackers could be obtained to assist in bringing these marauders to justice & if heavy penalties were imposed, it would no doubt have a restraining moral effect on others who seem to have nothing else to do but light fires in the closed season.*

The fresh-faced, keen, wide-eyed lad of seventeen who we were first introduced to at Collie has now grown into a serious young man in his mid-20s, who has already now learnt one of life's valuable lessons - if you're paying attention as you move through life, it really doesn't take you too long before you start getting tired of other people's shit.

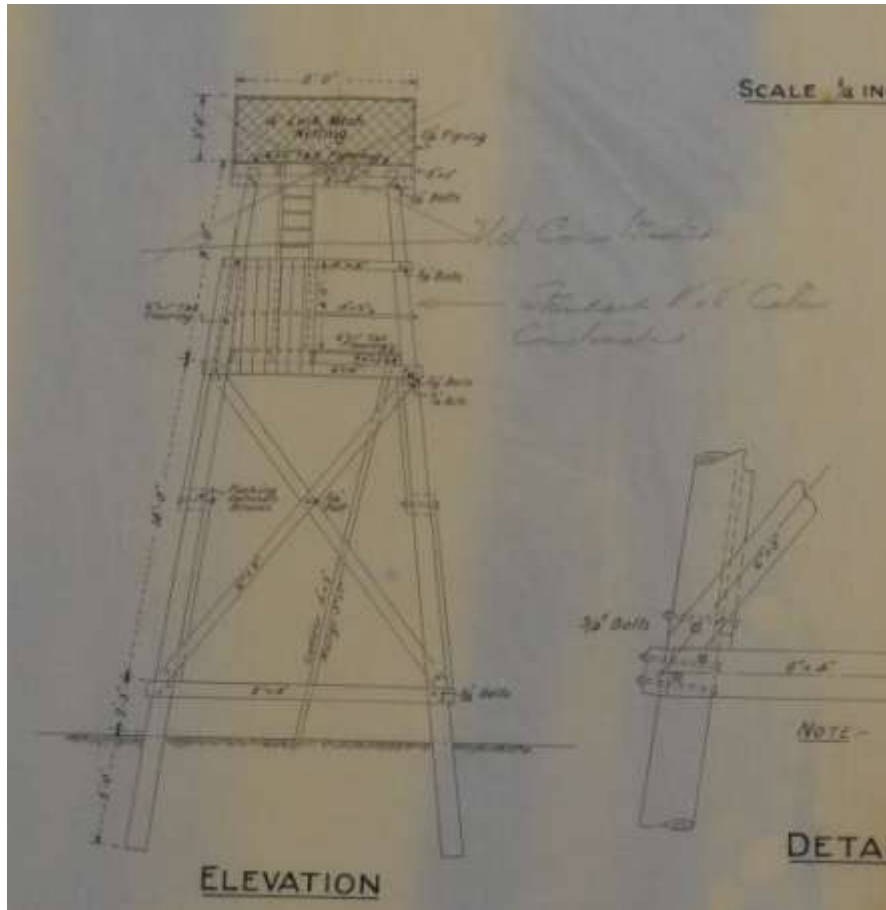
I raise a glass here to John Currie and his wisdom. Rest in peace, good sir.

The plan that came off the drawing board (F.D. Plan No. 492 - the drafting department had been hard at work for the past half a decade) is shown below:



It is a mystifying design. One section high to reach the floor of the cabin, there is then a second ladder *inside* the cabin up on to the 'roof'; which is an open type of crow's nest surrounded by link mesh netting. It is about 16ft to the floor of the cabin, and another 9ft to the floor of the crow's nest. It has always been referred to in Forests Department documents as being "25ft" tall, which raises a question. As John Currie has said (and because it was at that time an 'orphan' without neighbours) it was fitted with a rangefinder. This quoted height implies the rangefinder was *on* the crow's nest and not *in* the cabin. This makes no sense - to have an expensive piece of kit sitting out in the elements (including a hot sun) appears to be madness. The (metallic) equipment would get so hot on even a mildly warm day it would be inoperable. Never mind how hot the operator would get standing there when a cabin offering shade was a mere 9ft below. It also begs a further question as to why even have a cabin if observations are not being taken from it? The fact that the plan as drawn does not give any indication of rangefinder location as the earlier Gunjin plan did is surprising, and just adds to the mystery.

However, just to take the mystery to a whole new level, the following (undated) 'plan' is also lodged with the State Archives filed under Mt Wells:



The handwritten comments and scribbling-out state the crow's nest *was not* built, although why this couldn't have been recorded using an actual re-drawn plan is not fathomable. The other thing not fathomable is that this 'plan' is also absolute rubbish, as the crow's nest *was* built:



We are extremely fortunate in having two photos of the new Mt Wells Tower just after construction, one of which is reproduced above. We are also extremely unfortunate in not having any other photos of the Mt Wells Tower for the next thirty-plus years - not one from the 30s, 40s or 50s has ever been located. Unsurprisingly, this severely hampers what can be said about Mt Wells other than, in 1927 at least, it did have only a single section, a cabin with a ladder inside it which led up to a crow's nest, and there is no indication in the two available photos to indicate where the rangefinder was sited - which conforms exactly to what the original plan showed. Mt Wells remains to this day one of the least understood towers of the Forests Department. The reader can perhaps appreciate why.

A final point from the 1927 photo which has implications for all tower locations. The reader will notice that the area surrounding the tower has been extensively cleared to facilitate an unobstructed view. The degree of clearing is a function of the tower height chosen and the nature of the terrain of the high point it is placed upon. I encourage the reader to look at the earlier Collie-Lucknow photos as a comparison with Mt Wells as to the degree of clearing.

The other point to take from the photo is in the background - the expansive area which could be seen at Mt Wells even from ground level beside the tower. The author will return to this in more detail later when discussing the topography of the Darling Scarp.

### **Charles has his say**

Although beyond the time span of this chapter, it is perhaps fitting to close with the words of Charles Lane Poole himself, who came to Western Australia for an inspection tour as the Commonwealth's Inspector-General of Forests in May 1936, and who gave this interview which was reported in the *West Australian* newspaper on 1<sup>st</sup> of June 1936:

*"I have visited a very large part of the jarrah country and am much impressed with the contrast with the conditions which existed when I left the State Forests Department 14 years ago," said Mr. Lane-Poole in an interview on Saturday.*

*"At that time the forests had not been declared permanent reserves and were therefore in danger of alienation. Fires swept through the country every four years or so and all the seedlings were burnt off as they came up, while the larger trees were scarred and damaged by the constant fires. Frenzied land settlement was the policy of the day, and timber was unimportant in comparison with getting men on the land.*

*"The folly of using human flesh and blood as an index of the soil fertility of a region has been amply shown, but in my time Government after Government refused to dedicate even the poorest jarrah lands as permanent forestry reserves because they were regarded as potentially suitable for settlement. A large body of so-called practical men believed that the burning of the jarrah forests did them good, and held that, if the fires were excluded, the bush would become so thick that in their words 'we would not be able to hear a dingo bark'. It seemed impossible that a rapid change of outlook could come to the people of Western Australia in regard to forestry policy. Men like Kingsley*

*Fairbridge said that there would be no forestry policy in Western Australia until the last jarrah tree was cut down.*

*"All this has changed under the hands of Mr. Kessell and his able band of foresters. Country which in my time had nothing more than burnt crooked stems has now a fine regrowth of young jarrah. A splendid system of fire control has been instituted and the people living in the jarrah belt are now quite sure that the future of the forests and of their own livelihood depends on keeping the fires out. I have climbed several of the fire towers and looked out over large areas of country which in my time would have shown everywhere yellow patches where the fires had burnt the crowns. Now, thanks to the look-out towers and the telephonic communication to farms and the district office, it is possible to get to a fire before it assumes the proportions of a crown fire.*

*"The cleaning up of the jarrah forest has meant a great deal of hard work, for it was necessary to select from the stand which had been so ruined in the past, well-formed trees which would make good timber in the future. The work has resulted in the employment of large numbers of unemployed, helping to meet a situation which has proved very difficult in all States of the Commonwealth. It is hard to see what more valuable work could be found for the unemployed than the re-establishment of a permanent timber industry."*

Some of those lookouts he climbed had yet to be built as we close this chapter, and there's no mistaking the barely-restrained, residual anger at his treatment whilst he was Conservator, and the sense of "I told you I was right" shines through brightly in his words. It justifies in the author's mind the choice to keep this part of the story to a decade of time rather than the tenure of individual Conservators. Lane Poole and Kessell were essentially a double-act in two distinct parts during this decade, but as the decade draws to a close it's now all Kim Kessell, with a small handful of disparate tower designs under his belt (none of which would be reprised, and all of which may be considered as a necessary consequence of 'learning the ropes'), and with now more than half a decade in the chair to help him establish himself and hone his ideas. The next chapter should be good...



## **Chapter Two**

**Kim Kessell**

## **A bright future beckons**

As the new decade dawns, things are looking very rosy. A swag of new lands are now in the Forests Department's hands, and a (still) young Conservator - who's learned a lot since he ascended to the top job - has eyes for the future. The map of existing towers at this stage looks like this:



with Gunjin, Dale, Wells and Collie-Lucknow being represented by the symbols top-to-bottom. What could possibly go wrong?

## **Something goes wrong**

The author appreciates that nobody reads a book like this to get a lecture in politics (particularly something as fetid and undesirable as Western Australian politics), but politics now briefly makes a comeback into the story. In 1930, Philip Collier's Labor Party lost the state election and James Mitchell's Nationalists returned to government. It was a critical time. Mitchell could be expected to do his damndest to unwind what he would see as the Labor largesse towards the Forests Department over the last six years as best as he could now he had the whip hand again. It was most definitely a time of flux for Kessell, and for the entire Department.

The author does not believe in the concept of 'fate', but is happy to concede that if fate indeed *does* exist, it most certainly has a sense of humour. Mitchell regained the top job at the very moment the wheels were falling off virtually every part of the Western Australian economy as the Great Depression really started to bite. Perhaps in other less stressful moments, Mitchell may have had time to insert objects into the spokes of the Forests Department bandwagon to advantage his beloved agriculture and 'settler' philosophy, but now he now found himself fully occupied with trying to pull multiple rabbits out of hats just to stay in the people's favour during these increasingly hard and desperate times. As such, the Forests Department was low down on his list of priorities, and soldiered-on through this dark period unbothered any by serious political intrusion.

At the 1933 state elections, not only were the Nationalists defeated, but James Mitchell would lose his own parliamentary seat of Northam as well. Philip Collier and the Labor Party returned to government (and Labor would remain in power in Western Australia for the next fourteen years - although nobody knew that at this stage), and the Forests Department would regain the political stability and benign government support it needed to do its job effectively. Once again, the words "Kessell" and "lucky" seem to find themselves being used in the same sentence.

### **1933; and a whirlwind begins to gather pace**

Over a period of just more than a year, the number of towers doubled as units were erected at Mt Solus, Sawyers Valley, Teesdale and Mt William. All were of the same 26ft design, and the era of making towers to a standard plan was now under way. The period was described in an article in the *West Australian* newspaper in March 1935:

#### *MEASURES FOR CONTROL*

##### *Forests Department's Work.*

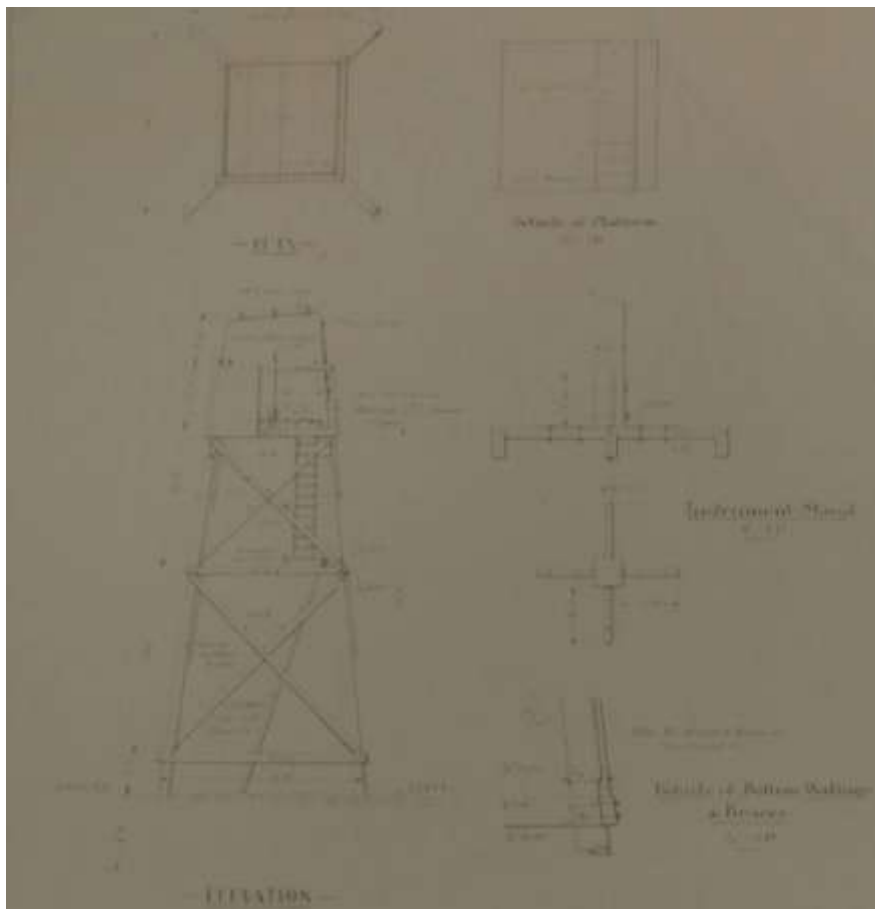
*'The destructive bushfires in the Great Southern district again focus public attention on this menace to the farmer and the forester,' said the Conservator of Forests (Mr. S. L. Kessell) yesterday, in making a general review of the position. Mr. Kessell described developments in bushfire control in Western Australia. Four additional fire towers had been erected in the past 12 months, he said, and other control measures included the establishment of a fire hazard research station at Dwellingup to facilitate the investigation of weather and other conditions controlling the spread of fires.*

*The equipment of the look-out man consisted of an inch to the mile plan of the area in view, a direction finder, from which he could obtain a bearing on any smoke under observation, and a pair of prismatic binoculars. It had been found that the use of a direction finder and prismatic binoculars, besides being simpler to manipulate, gave more satisfactory results than either a range-finder or a theodolite. Panoramic plans showing in detail the layout of the country in view from each tower were also being prepared to assist the look-out men in the exact location of smoke. The duties of a look-*

out man were to pick up all smokes in his area and communicate the bearings to the divisional officer who thereupon communicated with any other tower from which a cross bearing might be obtained. From these cross bearings it was possible to plot the position of fires in the very early stages.

The technique of fire suppression had received serious consideration during the past 12 months. Past experience had shown that, with satisfactory detection, speed in reaching the fire and organised attack were the prime essentials in successful suppression. During the fire season 1933-34 a special fire-fighting gang, provided with a light runabout truck and modern equipment, was established at Dwellingup. It was found that this mobile trained unit, using water as an extinguishing medium, was a considerable advance on the former methods of either direct beating or raking breaks and lighting back fires, both of which were slow and arduous operations. The equipment used was a small runabout truck with a water tank of 70 gallons capacity fed by a permanent pump attached to the truck, hand-worked knapsack water sprays, and rakes. This system was now being extended to other divisions with modifications to meet special local conditions.

The plan (F.D. Plan No. 646) from which all four towers were built is shown below (a very old plan, hence its faded nature). The reader's attention is drawn to the "instrument stand" which stood in the centre of the cabin floor.



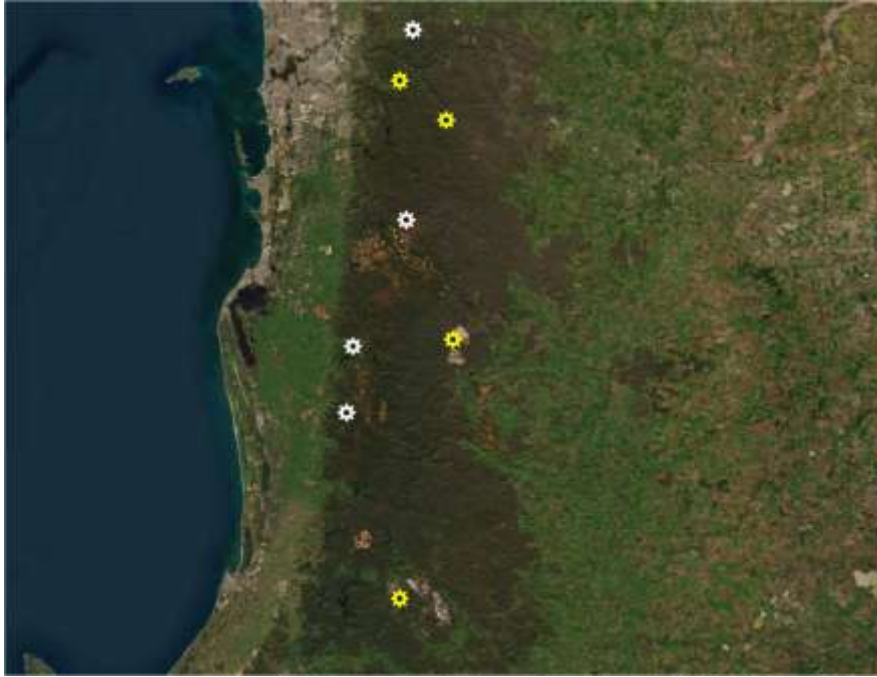
The finished product would go on to look like this (a photograph of the new Mt William Tower):



The lines of the design were neat and clean - something not seen since the Collie-Lucknow tower, and sadly lacking in the 1927 Mt Wells 'crow's nest' experiment. In fact, this 'set' of four identical 26ft designs may never have happened, as at one stage it was felt only a 15ft tower would be needed for Mt William, and a separate plan for a single-section size of tower was drawn (and resides in the State Archives). Ultimately that concept was abandoned, and the set of four identical double-section builds was instituted. The reader will see from the background in the photograph that the summit of Mt William was of a particularly open type which explains the 15ft thinking.

As mentioned in the above newspaper article, rangefinders were now 'out' as an idea, and a simpler direction finder was installed on the central stand inside the cabin. The concept of using the tower as part of a network involving cross-bearings from other sources as opposed to trying to use a tower as a 'one-stop-shop' to detect fire locations was now becoming established.

When the last bolt had been tightened, and the last coat of paint had dried, the Forests Department tower fleet now looked like this (top to bottom the white markers show Sawyers, Mt Solus, Teesdale and Mt William):



## 26 becomes 40

Towers in what was to be the next size up were already in planning whilst the 26-footers were being erected. Their standard plan would be F.D. Plan No. 650, and on that plan it states "For Details of Walings and Instrument Stand see F.D. Plan No. 646" - so, only four plans previous. This continuity of thinking would be reflected in the appearance, with what looks to a casual observer to be a 26ft design, although closer inspection will show *three* sections to the cabin floor, not two. Here is a photograph of the 40ft Mt Keats tower:

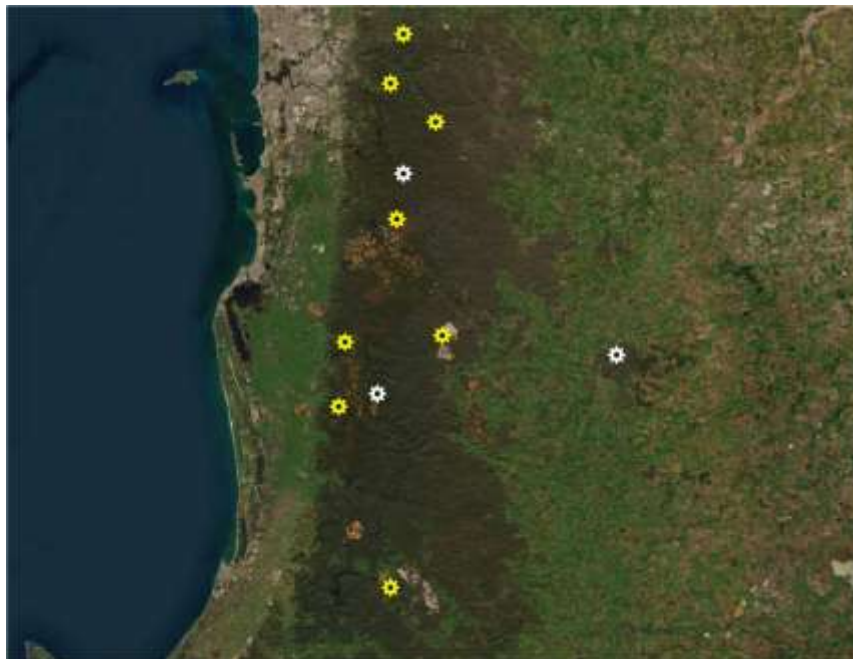


The 40ft design would be installed at three new locations - Eagle Hill (Gleneagle), Mt Keats, and away from the Darling Scarp at the newly-created Dryandra Settlement in the wandoo country north-west of Narrogin. The Dryandra tower would have the distinction of being the only tower ever constructed out of wandoo timber.

Mt Keats is unusual for a different reason, as it was just over six miles ENE of the newly-erected Mt William and, according to documentation in the State Archives, was scheduled to be constructed by the same contractor who was doing the Mt William site - subject to that work being of an acceptable standard. The official reason for the closeness of these two towers has not been uncovered, but it is assumed that neither location covered the broader area completely effectively on its own, and warranted this approach. The Mt Keats site overlooks the Murray River valley whereas Mt William does not, and this *may* have been what necessitated its presence.

Like the 26ft towers, the 40ft towers also had a central “instrument stand” located in the cabin. Being a taller design, each leg of the tower would now consist of two component poles spliced at a height just below the first set of walings.

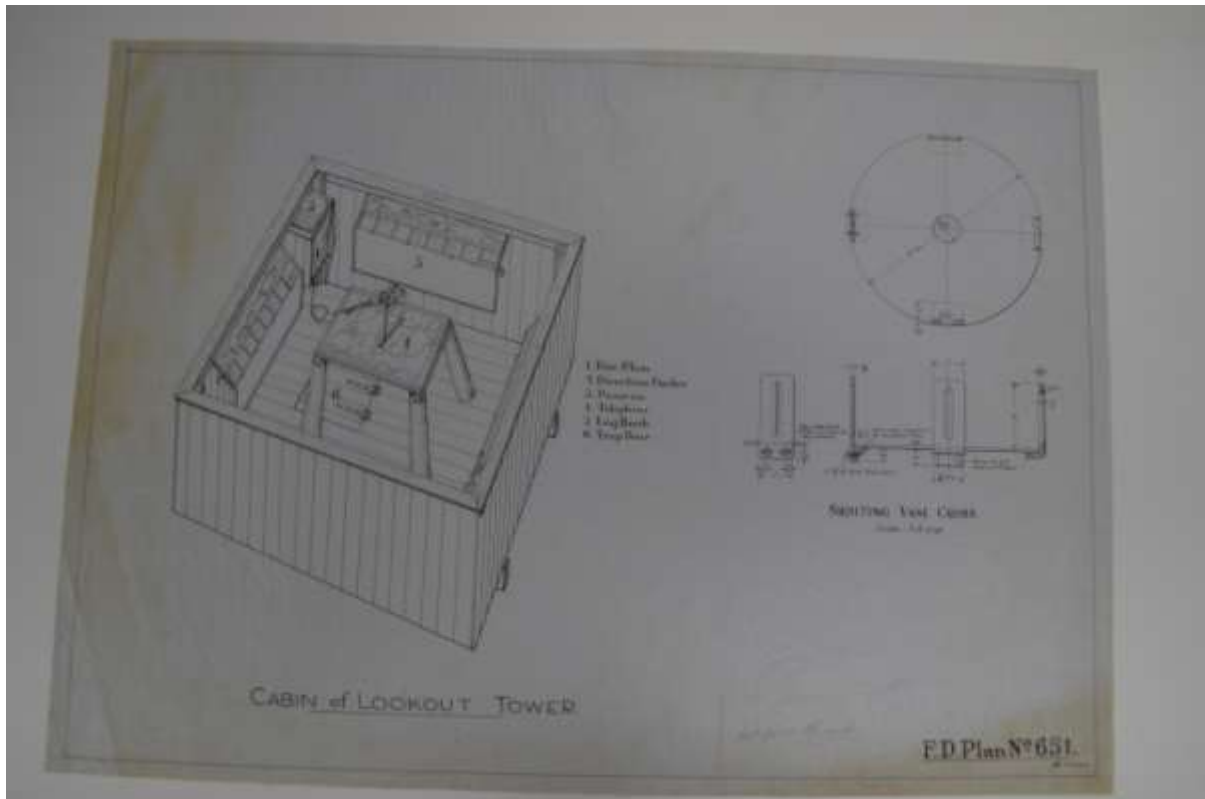
This particular form of ‘upwardly-tapering’ cabin design would no longer be used following the erection of the 40-footers, and this will be discussed more fully next. The map now looks like this (white markers top to bottom are Eagle Hill, Dryandra and Mt Keats respectively):



### **Plan tables, panorams, and the importance of the meridian**

Whilst all this building had been going on, the busy minds at Head Office were still ticking-over trying to make the whole system better. This is that story.

It was mentioned in the 1935 newspaper article that “*an inch to the mile plan of the area in view*” was part of the kit of a towerman. What was needed was a way to make that item convenient for the user. The following very unusual (for the Forests Department) ‘concept drawing’ of the inside of a cabin was located at the State Archives (the reader will note from the numbering that it was the next plan number after the 40ft standard plan):



The reader will see that there is no instrument stand, but rather a table on which the plan of the area under view is placed. It will also be seen that on each wall there is a panoramic sketch of what is to be seen when looking out that particular side of the tower, and each of these come with a hinged flap which can be folded upwards to protect the drawing when not in use. These would be known by the Forests Department as “panorams”, and were able to be written on by the towerman to include any additional detail considered important.

The reader can see the problem emerging here - a cabin which was designed only to have a thin instrument stand in its centre would now contain a central table and wall-mounted items which would significantly reduce the area available for the towerman to move around in. The panorams in particular must have led to a significant number of bruises and abrasions over the years by being so located.

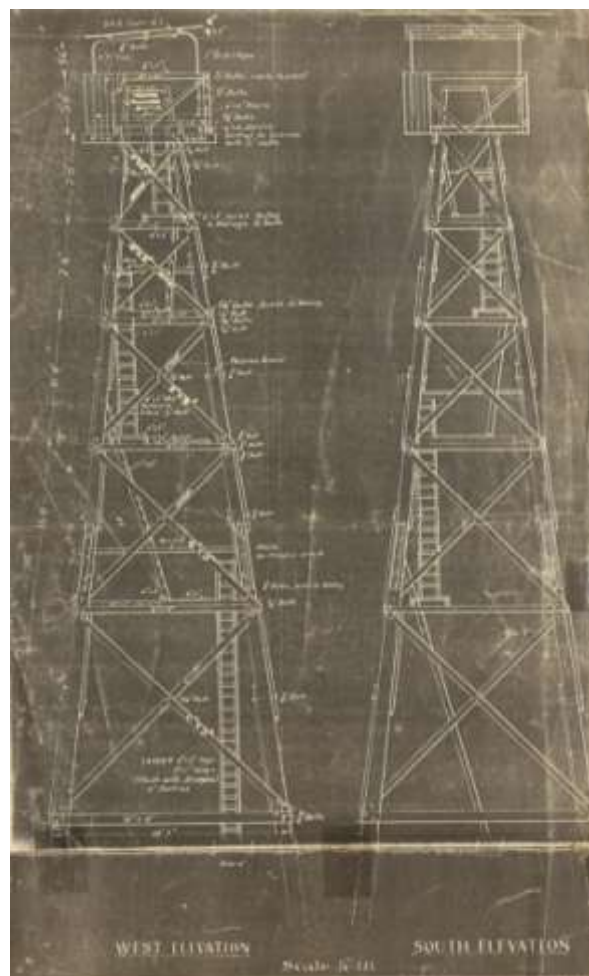
There is a further complication. Maps are commonly drawn to the meridian, with north located at the top. A square table, with a square map sitting on it, inside a square cabin, requires all to be in the same relative orientation in order to maximise the free space between table and cabin walls. Anything less makes a cramped space even more cramped. For this concept of a plan table to work, having the tower aligned to the meridian during construction suddenly becomes an object of interest when building them.



None of the new towers being discussed so far survive into the present day to enable checking of this detail, and as all involved placing the legs in holes which also no longer survive, it is not known the definitive orientation of any of them. The one piece of assistance is a surviving 1960s aerial photo of Sawyers Tower before it was demolished, and this *does not* seem to show the tower's sides were aligned north, south, east and west. If this was indeed the case with the other newly-built towers of this time, it meant cutting, rotating, and stitching of maps was probably necessary to compensate for the table not pointing to the north once those tables started to be fitted.

Modern readers living in a technological age may perhaps not appreciate the problem. Nowadays the author is sure maps are probably all on one giant database from which any desired section may be cut and reoriented on computer with a couple of mouse clicks to any given meridian (whilst also rotating all writing on the map) which would correspond to that area of the table on which the map would be placed. In the days when a slide rule, a protractor, and a Stanley knife were at the apex of technological instrumentation, and where a very precise product was required, this would prove to be quite a challenge. We are approaching a time when some re-jigged thinking would be necessary, and we've only just entered 1936.

### Still higher



This (above) is the standard plan of the next tower size to be built. Called a '60ft' design, it should be mentioned at this point that the lengths of the individual sections as measured along the inclined leg from ground to the floor of the cabin only total fifty-four feet, with the walls of the cabin supplying an extra five feet of height. This is mentioned as a tower's height until now was traditionally quoted as the *vertical* (not inclined along the leg) height from floor-of-cabin to ground level, and this was a departure from that convention. This topic will be taken up further later in the book. Like the 40-footers, each 'leg' is actually two pieces of timber spliced together, although for these 60ft towers the splice is now *above* the first set of walings. The 60ft design would come with five sections.

The revolutionary part of the new design is at the top of the drawing. The previous upwardly-tapering cabin has gone, and is now replaced with something more akin to a square box. More importantly, the tops of the legs now no longer end underneath the floor of the cabin, but extend *into* it to form the plan table legs as can be seen in the cutaway drawing. Such a design ensures that table and tower base are now aligned. If the legs are inserted in the ground such that the four sides of the frame face north, south, east and west respectively, then so too will the plan table (and therefore so too can a regular map drawn to the meridian be placed neatly onto it).

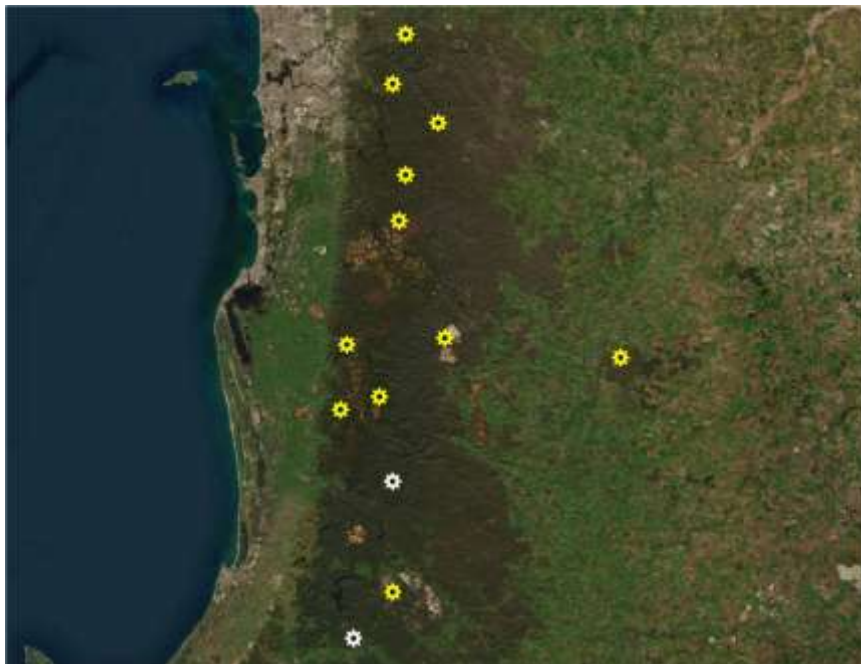
Interestingly, the elevation descriptors at the bottom of the drawing are labelled "west" and "south" respectively, which provides some evidence to suggest these new towers were not randomly aligned, but according to compass headings. As neither tower built survives today, this is unable to be confirmed. A photo of one of the two 60-footers built (Mt Ross - the second tower of this design was Yabberup) is shown below:



This photo angle highlights the changes which occurred now that this concept of using the tower legs inside the cabin also as the plan table legs was to be adopted. The plan table now determines the degree to which the legs must be inclined, as it is required to have set dimensions. Previously, the tops of the legs would intersect with the four corners of the cabin floor which meant the legs were more vertical and the cabin had an appearance of being fully supported; now the cabin 'hangs over the legs' and is supported by bearers which are bolted to the legs several feet below their tops. Joists are bolted crosswise on top of these two bearers, and cabin floorboards are attached crosswise to those with the boards shaped to fit around the legs which now extend into the cabin.

A final point to mention is that the cabin roof retained the same style as previously, with corrugated iron sheets bolted onto an inverted "U" section of tubing. Whilst lightweight, it still meant any panorams fitted would need to be affixed to the walls of the cabin, and could not be placed above 'window height' if the cabin was more solidly constructed with corner posts that supported a roof.

When Mt Ross (top white marker) and Yabberup (bottom white marker) were in place in time for the 1936/7 fire season, the map of the Forests Department tower fleet now looked like this:



The author has never found any archived justification for Yabberup being located where it was. The reader may recall from an earlier discussion that Collie-Lucknow turned out to be poorly placed for covering areas from the north-east westwards around to the south, and it is assumed this deficiency played a part in the Yabberup siting.

Unlike any of the previous designs, this 60ft tower would make a brief comeback into fashion in the early 1950s. Discussion of that tower (George Tower) follows later in the book.

## Southwards and upwards

It will not have escaped the reader's attention that as we've been progressively moving southwards during the course of the narrative, tower heights have been moving upwards. This is not an accident.

Several "mountains" have already been mentioned as the progression of fire towers has advanced southwards. The tallest (and those with the largest relief compared to the surrounding terrain) are to the north and close to Perth's latitude. As you go south, the term "Mt" disappears from maps altogether, as the isolated peaks vanish and a more rolling form of landscape emerges. It is still high ground (by Western Australian standards anyway), but it is more uniformly high. Finding any potential high points or ridges becomes more challenging if the object is to see over the tops of the nearby trees and down to ground level more distantly. As the terrain becomes less helpful for siting fire towers, adding more height to structures becomes the necessary and obvious way to counter the problem. That's the reason. The picture changes eventually should you look far enough south and east of the Pemberton area, where granite domes caused by past inter-continental forces start appearing - but those areas are well beyond the Forests Department mandate in these early years.

## High tech comes to Kirup

In order to complete the list of towers built to standard plans for the areas north of Collie as a single, flowing storyline it has been necessary to temporarily shelve discussion of a special CSIR-designed addition to the Forests Department fleet which was built east of the town of Kirup during the latter part of 1935. This informative news story comes from the *West Australian* on the 26<sup>th</sup> of November:

### TIMBER CONSTRUCTION

#### A NEW DEVELOPMENT.

#### Novel Tower at Kirup.

*To supervise the construction of a fire look-out tower at Kirup which he designed, Mr. Ian Langlands, timber mechanics officer of the division of forest products at the Council for Scientific and Industrial Research, arrived in Western Australia about October 14. The tower (which is of unique construction), having been completed, Mr. Langlands left Perth for Melbourne by the Great Western express on Saturday night.*

*In spite of its many advantages, said Mr. Langlands on Saturday, timber had for some years past been losing favour as a structural material. However, modern methods of design had given timber a new lease of life and in Europe and America timber was now competing with and even displacing steel as a structural material for such uses as tall towers, roof trusses, large halls, etc. This was particularly remarkable in Germany, where most of the timber used in large structures was imported and was comparatively expensive, while steel was very cheap. Perhaps the most spectacular use to which timber had been put was in the high radio towers which were scattered over Germany. There*

were a number of these over 300ft. high, and one recently constructed had reached the amazing height of 625ft. In America towers up to 300ft. high had been constructed, and just recently a large arch timber bridge was completed on one of the main arterial highways.

The principal factor responsible for this revival in the use of timber was the development in Germany during and after the war of new methods of constructing joints by the use of what was commonly called connectors, To understand the revolutionary change that was accomplished it was necessary to appreciate the fact that the strength of the structure was limited by the strength of the joints. With ordinary methods of construction in which the timbers were bolted together it was possible to develop only a small percentage of the strength of the various members, with the result that the timber used had to be unduly big and heavy. By using modern connectors, however, the joints could be designed to have practically the same strength as the members, with the result that for a joint of given strength the size of the timber used could be greatly reduced. A great variety of these connectors had been introduced, but two were of outstanding importance. One, the alligator type, consisted of a toothed ring of steel which was pressed into the wood between the various members at the joint. The other, or split ring type, consisted of a steel ring which was fitted into pre-cut grooves in the various members. The whole joint was held together by a bolt which took none of the load but was merely present to hold the members together. Thus the connectors could be likened to dowels of large diameter which, while capable of taking great loads, did not weaken the timber to any extent.

#### New Methods Applied.

Believing that the modern connectors would be of considerable assistance to the timber industry in Australia, continued Mr. Langlands, the division of forest products of the Council for Scientific and Industrial Research obtained samples of the various types of connectors used overseas, and was starting in extensive investigation into their behaviour when used with Australian hardwoods. When visiting the laboratories of the division of forest products recently the Conservator of Forests (Mr. S. L. Kessell) was greatly impressed with the possibilities for modern connectors, and arranged for an officer of the division to design a fire look-out tower of approximately 100ft. in height for the West Australian Forests Department, using split ring connectors. The construction of this tower, which was 103ft. high to the platform, and 112ft. high overall, had just been completed. It was located on a hill near Kirup, and had an extensive view of the surrounding forests. The use of modern connectors enabled the size of the various members to be kept to a minimum, with the result that the tower had a 'spidery' appearance, more characteristic of steel than of wooden structures. Thus, the four corner posts varied from 8in. by 8in. in cross section at the base to 4in. by 4in. at the top, and the bracing system was practically all 4in. by 2in. timber.

The tower was 20ft. square at the base, had an 8ft. 8in. square platform at the top, which was boarded in for a height of 4ft. 6in., and had a galvanised iron roof. Access to the platform was by a staircase up the centre of the tower. The tower was designed to withstand hurricanes up to 100 miles per hour, and was held down by four concrete footings 6ft. 9in. deep and 5ft. square. In constructing the tower the four sides were first completely assembled on the ground and all bolt holes were drilled. Each piece was then carefully marked and the sides were taken to pieces and the grooves drilled for the connectors. The tower was then erected piece by piece. After the first 15ft. no scaffolding was used. The tower was constructed entirely with green jarrah with the exception of the

*stairs, which were of dry jarrah. The tower was a striking example of what could be done with modern design methods.*

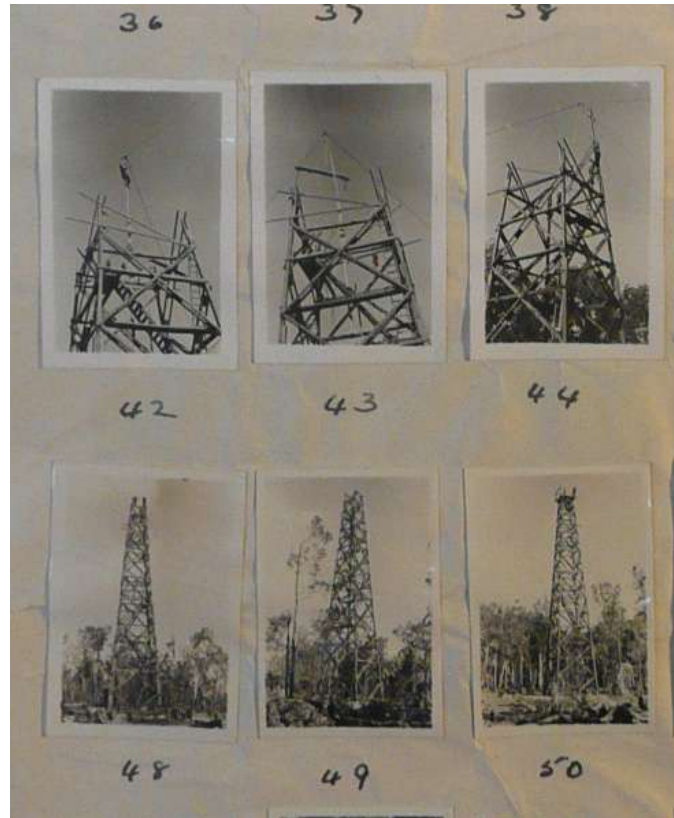
*'The performance of this tower will be watched, with great interest all over Australia,' added Mr. Langlands. 'If it proves successful, as is confidently expected, it promises to usher in a new phase of timber utilisation in this country.'*

It looked like this (Author's note: photo was probably taken just after completion judging by the material shown scattered around the base):



Ian Langlands wrote a detailed report of the tower build which included photographs of various points during construction. This is housed at the State Archives. Part of the report goes into the quality of timber sourced for the project, and this led to a minor kerfuffle with letters being exchanged with differing accounts of 'agreed facts' as each aggrieved party saw them. It is probably true to say that collaborations of this sort always had the possibility to turn sour, and this may have contributed to the Forests Department 'going its own way' in future as regards design and erection of the other taller towers still to come.

Langlands' report is extremely instructive, as his photographs show what was to be a type of erection technique not used again by the Forests Department in subsequent tall tower builds. The East Kirup Tower would be a good project for the Department to watch on and decide what was a good idea and what, in their view, could be done better.



The “spidery” nature of the build was one facet of the design definitely *not* repeated - future tall towers would have cleaner lines with larger timbers used for parts like the cross-beams. East Kirup Tower would, over the years, develop a reputation for having a high degree of sway and movement brought about by the use of multiple numbers of small members, which this photo shows quite well:



Additionally, Langlands reprised the old Collie-Lucknow idea of having the ladder zigzag up close to the tower's centreline. This would also be discarded as a useful design feature, and future towers would return to a more conventional Forests Department principle of walkways and ladders with a less formalised structure which ranged more widely over the extent of the area contained inside the tower leg framework as it ascended to the cabin.

Regardless of any design deficiencies it may have possessed, East Kirup lived a long and useful life, and according to unverified anecdotal evidence it was only demolished by explosives in 1980 to make way for a Forests Department radio transmission tower on the same spot. If those responsible for the demolition were even aware of its historical significance, that apparently did not carry sufficient weight to prevent its subsequent destruction.

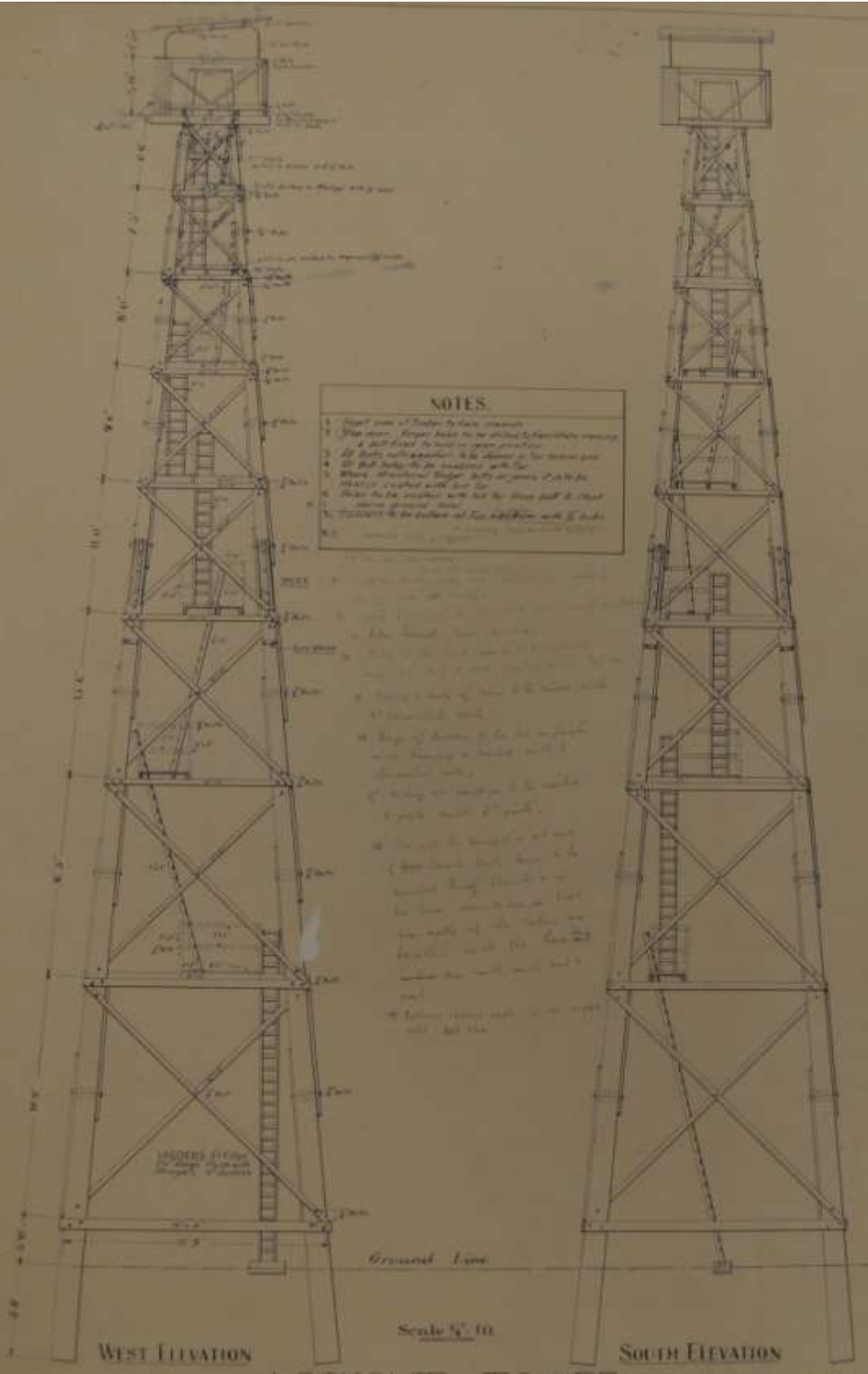
Here is East Kirup's location in regards to both Collie-Lucknow and Yabberup:



### **A spot of D.I.Y.**

Having watched a tall tower being erected by one of eastern Australia's experts in the field, it was only logical that the Western Australian Forests Department now believed they could do it better. That sort of parochial thinking comes with the territory, as every patriotic Western Australian knows. F.D. Plan No. 678, for a 100ft tall tower, came off the drawing board on 3 November 1936, and the jumble of braces and other timbers that Ian Langlands had conjured-up east of Kirup would now be superseded in future by this elegant and clean (and Western Australian) design. It would have eight sections from ground to cabin floor:





**NOTES**

1. Light paint of tower to have remainder
2. When erecting, always ladder to be placed to opposite side of a full beam to have in open position
3. All bolts well tightened to be shown in the erection part
4. All full bolts to be tightened with bar
5. Where structural member fully in place, it shall be secured with bar for
6. Where the full member with bar the same full & shall secure ground bars
7. Vertical to be secured at top with 1/2 inch

Scale 1/4" = 10'

WEST ELEVATION

SOUTH ELEVATION

LOOKOUT TOWER  
100ft STANDARD

E.D. Plan N° 678.  
Sheet N° 1

Elevations are again labelled “west” and “south”, indicating that the tower was aligned with compass headings. In this case, we *know* this to be true as one of the handwritten notes on the plan covers just this point. East Kirup’s orientation was never mentioned in the Langlands written report, but he does state that “...*the general location of the excavations was laid out approximately before my arrival...*”, which may suggest this preliminary work undertaken by the Forests Department established the orientation that Langlands built on. If so, we have now a run of towers happening where orientation to compass points was considered to be a vital part of the build.

F.D. Plan No. 678 is interesting, and deserves some discussion. Ian Langlands built East Kirup Tower on concrete footings, thereby reprising an idea not used since Collie-Lucknow (and his report includes detailed descriptions as to how this was done), but for some reason the 100ft tower which was to be installed at Mornington eschewed this approach, and the standard method of placing legs into the ground that was used on the smaller towers was maintained - in this case to a depth of five feet. At a time when minds were clearly energised with solving tower problems present and future, it was an odd decision - especially as more than a decade previous it was decided that the 80ft wooden tower at Collie-Lucknow required this type of foundation.

The really surprising feature of the 100ft plan is the legs. A brief detour into splicing principles is now required.

Long lengths of unworked timber do not have a uniform cross-sectional area over their length. The part which grew closest to the ground (the ‘butt end’) has a greater diameter than the part which was closest to the top of the living tree (the ‘crown end’). Like a living tree, a tower leg has this same type of upwards taper - the diameter of the leg is largest at the base, and progressively decreases as you approach the cabin. Once you go beyond a certain length it becomes significantly harder to source single pieces of timber which can meet the mandated diameters both top and bottom, and have the trueness of form (and the lack of imperfections) to be suitable. A way around this is to use shorter pieces of pole and splice them together to form a finished, single leg. If you were to use two poles for the process then obviously the crown end diameter of the lower piece must be the same as the butt end diameter of the upper piece it will be spliced to, thus creating a seamless appearance. Splices are a perfectly acceptable technique to use when the forces on them are passing vertically through the joint as they are here. A splice used on a horizontal, load-bearing timber would be another matter altogether.

It will be remembered that the first use of splicing on Forests Department towers occurred way back with the 40-footers. What is extraordinary about this new 100ft design is, despite it being two-and-a-half times taller; it too only has the *one* splice (in the fourth section, just above the third landing). By way of comparison with the next tall tower size still to be built (and yet to be discussed) - the 125-footer, that size of tower had *three* splices on each leg (i.e. four shorter lengths of pole joined together to make one apparently seamless leg). The lower of the two poles spliced for the 100ft tower was 68ft long and the upper of the two was 46ft long. In contrast, the later 125ft tower’s largest individual pole was 47ft long and the shortest was only 26ft. Taken collectively, this suggests to the author that the Forests Department was still on the tall tower learning curve when the Mornington Tower was erected in 1937.

Another point of interest can be seen on the above plan in the third section just below the third landing (and thus the leg splice) where something called a “guy band” is placed on all four legs. This was the anchor point for a 5/8 inch diameter wire rope which was connected to guy posts in the ground placed 30 feet from each leg. The idea that a notionally stable tower of this type would need guying as well seems unusual in the extreme, and further reinforces the notion that Mornington was very much a case of flying blind as to outcome. It is not known how long the guy cables were retained.

There is also the fact that a height of 100 feet would be, as would become evident, towards the lower end of a range of tower sizes suitable in jarrah or karri country where an obvious, particular high point could not be located in a convenient spot. A combination of these factors may have led to the 100ft design being abandoned after just Mornington - until it was surprisingly brought back for another go a decade later (as will be discussed in the next chapter).

With Mornington built, the tower map in the southern areas now looks like this:



Whatever doubts the Forests Department may have had about the fundamental stability of Mornington Tower, they never communicated them to the wider public. The tower’s sturdiness was subsequently verified shortly after erection in a most unusual manner:

ARMED MAN IN TOWER.

SHOT GREETES CONSTABLE.

Long Vigil in Look-out.

HARVEY, July 29 1937

*Apparently nursing a grievance which, it is believed, may have affected his reason, a bush worker at Mornington, armed with a rifle and ammunition, occupied a forestry look-out tower about six miles from the settlement and defied all efforts to bring him down until 9.30 o'clock tonight, when his 26 hour vigil ended.*

*Constable W. Aylmore, who was sent from Harvey, made an effort to climb the tower, hoping to coax the man down. He was greeted with the crack of a rifle but the shot did not take effect. The constable beat a retreat and, as further efforts to approach met with similar resistance, it was decided to wait under cover nearby in the hope that the man eventually would become pacified.*

*The man, George L. Elliott, who is of middle age and has six children, left his home last evening shortly after 7 o'clock, taking with him a single-barrelled shotgun and a quantity of ammunition. As he left the house, he handed his eldest son an envelope with instructions that it should be delivered to the postmaster at Mornington this morning. Elliott gave his family no explanation of his intentions.*

"My Case."

*The letter, which was this morning delivered to the postmaster by the boy in accordance with his father's instructions, contained five closely-written foolscap pages, headed "My Case," and concluding:-"I want a proper inquiry into my case and not by departmental officials. I want the whole system inquired into by the Chief Justice of Western Australia. I have taken possession of the forestry tower and I don't intend to come down till I get justice and, as my position gets more desperate, I intend to shoot to kill. I am well armed." In the document, Elliott sets out in great detail the treatment he alleges he has received from the Agricultural Bank and the Employment Department. He also makes allegations that the bank is indebted to him to the extent of £90.*

*On leaving his home, Elliott apparently made for the forestry tower, which is about a mile and a half from the house, and spent the night there. The tower is 110 feet high and is situated in a cleared area surrounded by thick forest. The cabin at the top is roofed. The tower is of skeleton construction, somewhat resembling poppet legs over a mine shaft. Access is gained to the top by a series of ladders running alongside the sides of the tower. (Author's note: a not overly-accurate description)*

*Elliott was first discovered there by members of his family and, when all entreaties to urge him to return to his home failed, his wife communicated with the postmaster at Mornington with a request that the police should be notified. Constable Aylmore was immediately sent to Mornington, and arrangements were made for the transport of the man's wife and family into Harvey, where they arrived this evening. Arrangements have been made for them to be taken care of.*

*Mrs. Elliott told a story of privations suffered by the family owing to indigent circumstances. She told the police that for the past three days they had eaten nothing but dry bread.*

Doctor's Attempt Fails.

*This afternoon, Dr. A. N. Jacobs, of Harvey, who had previously attended members of the family, went with the police to the tower to attempt to induce Elliott to come down. He courageously*

*climbed to the top of the tower to take food to the man. Elliott refused to open the trap door which would have given the doctor access to the cabin at the top of the tower, and he would not take the food and tea which was left on a landing near the cabin.*

*The doctor stated subsequently that the man was dangerous in his present frame of mind, and he considered that a continuous watch should be kept at the tower to apprehend the man should he forsake it.*

*Constable J. Chambers communicated with police headquarters and, acting on instructions from Perth, Constables Chambers, P. Potts, of Yarloop, and A. Napier, of Waroona, left for Mornington tonight at 8 o'clock in order to make, - with Constable Aylmore, a further effort to induce the man to leave the tower.*

*Elliott was finally persuaded to leave his vantage point when the police promised him that his "case" would be investigated. Accompanied by some friends of Elliott the three constables reached the tower shortly before 9.30 o'clock. The police car was driven close to the base of the tower and one of Elliott's friends reasoned with him in an effort to get him down. At first Elliott refused to entertain any of the advice offered by his friend, but he finally agreed to throw his firearms and ammunition to the ground if the police would promise in return that his grievances would be investigated. The promise, being given, he then threw the rifle and ammunition from the top of the tower before climbing down from his lofty perch which he had occupied for 26 hours without having food or water.*

*The constables later brought him to Harvey, where he was given nourishing food and otherwise cared for. He will be charged in the police court tomorrow with being a person of unsound mind. Elliott has resided in the district for some years, and has occupied several properties in the Mornington district in the capacity of caretaker.*

To the best of the author's knowledge, this was the only time that Forests Department structures were ever used to address questions of social injustice. Over many years towers and their unoccupied cabins have occasionally been shot at by hoons and vandals - this is the only known case where a tower was shot *from*. Readers interested in the story and the subsequent outcome can follow it using online newspaper archives.

## **When galaxies collide**

Much like a storyline from a Dr Brian Cox science documentary about astronomy, we are arriving at the point in time where two galaxies (one large, one small) are about to collide and merge. This book has been tracing the growth of the larger of the two (the towers), but a second galaxy has also been in existence for a short time which the larger galaxy is now about to intersect. The Dave Evans' book *Lookouts of the Karri Country* traces the history of the tree lookouts of Western Australia, and we are now at the time when two different types of lookout structures are beginning to overlap geographically. Three 125ft towers are about to be built to add to the expanding fleet, and the new map showing them (white symbols left to right; Carlotta, Glenoran and Kepal) is included here before the discussion is commenced:

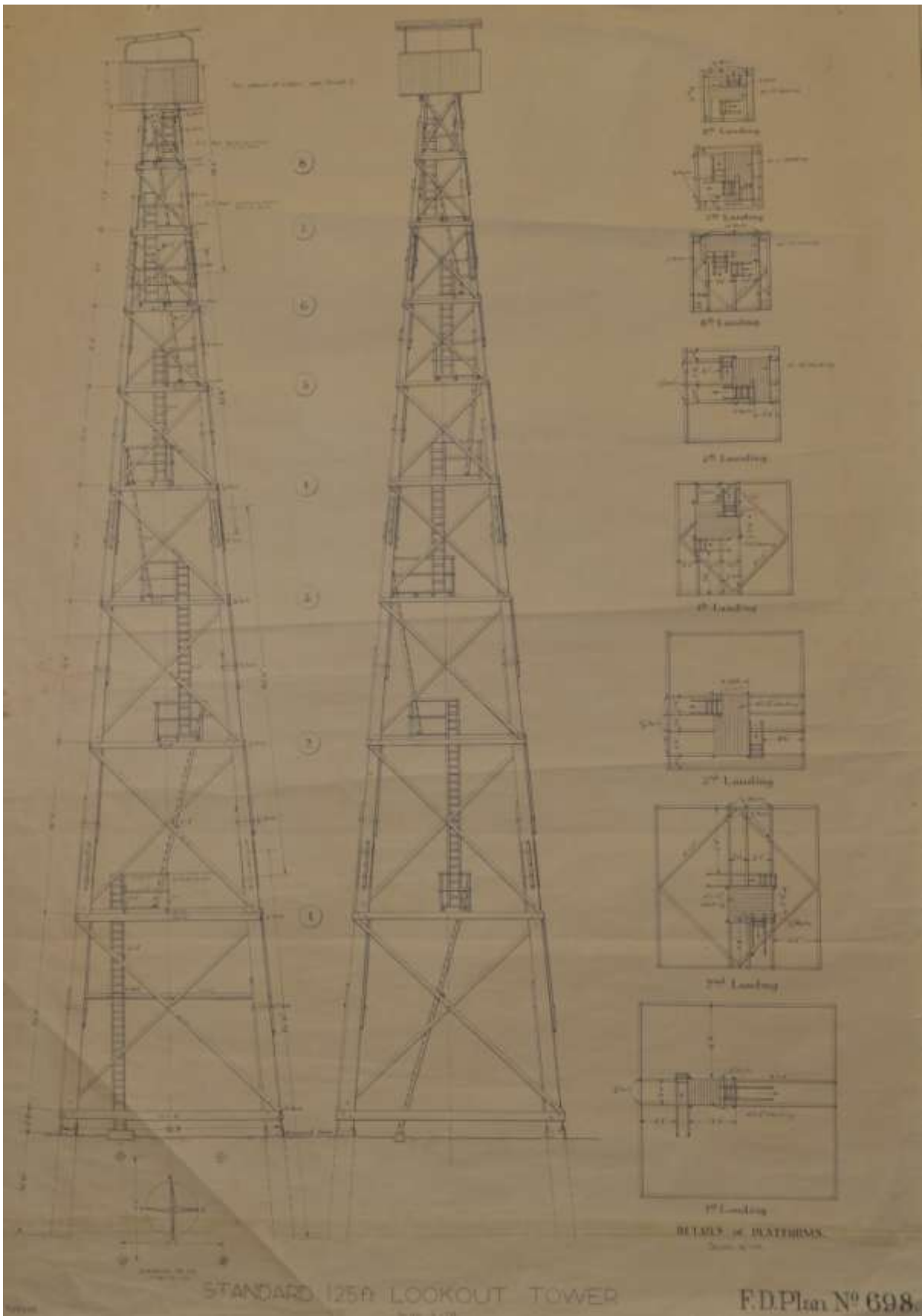


The tall tree lookouts started their journey in Forests Department history in the mid-30s at Ludlow near Busselton courtesy of Jack Watson's efforts there. A tree lookout was subsequently erected west of Kirup (called Kirup Tree), which is a little to the left of the East Kirup symbol on the above map. Still later, a tree lookout was constructed in 1937 near to Alco Siding (which is south of the East Kirup symbol and north of the Glenoran white symbol on the above map). Further tree lookouts were in various stages of advancement at this time further south of the white 125ft symbols. Trees and towers were now in direct competition for being the most suitable choice to use at a given location. As mentioned in the Introduction, it is not the author's intention to in any way intrude on Dave Evans' work, so it is suggested here that the reader acquaint themselves with the evolving tree story as told in Dave's book to chronologically mesh the two parts of the story together from this point onwards.

There is a further part of the tree lookout story to mention which will be expanded on later; for the first few years tree lookouts *were not* included in the official numbers of lookouts (which were reported as "towers" in annual reports) - they existed, but were not acknowledged in official figures. This feeds into a much larger discussion about just how many lookouts there actually were, and is an ongoing headache for researchers which needs a deal of explanation which will be included in the narrative at the end of this chapter.

### **99 feet later**

The Kessell tower 'explosion' of the thirties began in 1933, with the brace of four 26-footers. We are now in 1938, and looking at structures that are nominally ninety-nine feet taller. The nine-section tower plan would look like this:



STANDARD 125 FT LOOKOUT TOWER

F.D. Plan N° 698

Superficially similar to the 100ft plan - but with the nine sections, there are some notable differences between the two designs. Legs are embedded in the ground to a significantly greater depth. Guy cables are absent, and the three splices in each leg are clearly visible. A compass in the bottom left-hand corner shows this design was definitely meant to be built to the meridian and an extra beam is added under the first section of ladder to provide additional support. The cabin as drawn indicates no change from the 100ft tower.

With the first two of the 125ft towers (Glenoran and Carlotta) being built quite near to towns (Manjimup and Nannup respectively), there were eager provincial newshounds on hand to provide accounts to the papers. As such, we have something very rare in early tower history - accurate dates for the construction. It is known that Glenoran was completed by the 11<sup>th</sup> of January 1938, and that Carlotta was under way on the 11<sup>th</sup> of February 1938, suggesting they were a 'double build' possibly using many of the same men, and any useful experience gained in erecting Glenoran was available for Carlotta. Glenoran was built using karri timbers (a Forests Department first) and is no longer there, but Carlotta still stands today - making it the oldest Forests Department tower structure in existence. Satellite photography of today's Carlotta site confirms the tower was erected using compass headings.

There is now a brief hiatus, and Kepal Tower only makes it into the newspapers in October of that year when the following juicy story appears on the 20<sup>th</sup>:

#### Fire Control Tower Mishap

##### Youth's leg broken

*An incident as stirring as any in a picture thriller occurred on Wednesday morning of last week in the course of construction of a 125ft fire control tower at Kepal (Kepalarup) off the Perup road and about 22 miles from Manjimup.*

*A rigger named Albert Raymond (better known in Manjimup as "Bill") Membry, aged 20, was working on the tower 70ft above ground while a section was being raised by means of a derrick. Damp weather conditions caused an undue strain to be placed on the guy ropes, and Membry, noticing the derrick sagging towards him, began to scramble down a diagonal brace. A guy rope broke allowing the derrick to fall, and as it fell it snapped a heavy piece of timber, part of which fell on Membry's right thigh breaking the bone. The youth clutched a beam and hung on. A fellow-worker hurried to support him until the contractor (Mr. Laurie Jones) also reached the injured man. Mr. Jones, an expert at work aloft, performed the difficult feat of carrying the disabled young man to the ground.*

*Membry was taken to the Warren Hospital where he was found to be suffering from shock, fractured right leg, and a slight injury to the right wrist. It is considered fortunate that he had not been able to climb further down the diagonal brace, as the derrick in falling struck the brace lower down, and might have caused far graver injury to Membry.*

*This is the first severe injury suffered by a worker on any of the fire tower construction jobs.*



This gap between the rapid successive constructions of Glenoran and Carlotta and then the erection of Kepal points to an interesting intervening period, as Kepal *was not* a carbon copy of the first two 125-footers. Some form of appraisal clearly occurred between second and third tower construction.

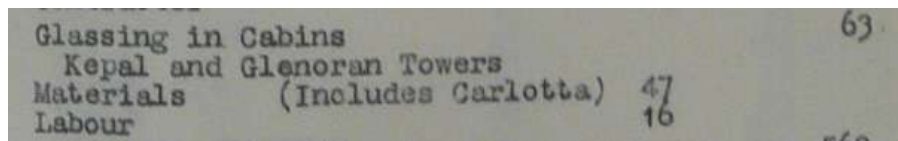
The motivation for now choosing to place Kepal on concrete footings is unknown, but despite Collie-Lucknow and then the later East Kirup being done this way, Mornington, Glenoran and now Carlotta weren't - and then all of a sudden the concept is back in favour again. It is a Forests Department mystery which has yet to be unravelled. A copy of a modified 125ft tower plan showing this change has never been located amongst the archives.

As radical a switch, Kepal would also now have an entirely different cabin roof design, which this 2019 drone photograph of the abandoned tower shows:



Gone is the half-loop of tubing onto which a simple corrugated iron 'sun shade' was bolted as per the plan; this design uses solid corner posts and a near-flat roof which had the hatch in it fashioned to allow the placement (and maintenance) of various radio antennae as they would be invented and installed in future years. The cabin would subsequently be glassed-in, with two sides shown here having louvers and the remaining two being solid plate. It is believed this photo shows a variation from the original late 30s installation, which probably used plate glass on all four sides - the louvers were only installed at a later unknown time. The reader can also clearly see - because of the dilapidated state of the walls, the arrangement by which the very tops of the legs formed the plan table. It is ironic that so many photographs taken of operational towers in the day do not show anywhere near as much internal cabin detail as does one snapped years after the tower had been abandoned and was now falling to bits. The author is very sorry that drones took so long to be invented - they would have left very useful records behind if they'd been flown many decades ago.

The exact timeline for the glassing-in is uncertain. This entry appears in the Manjimup section of the Detailed Annual Report listing expenses June-June 1939/40 (figures are pounds):



Glassing in Cabins		63
Kepal and Glenoran Towers		
Materials (Includes Carlotta)	47	
Labour	16	

If accurately reported, this means Kepal, Glenoran and Carlotta were all retrofitted with glazing at approximately the same time - and at a time possibly a year *after* the Kepal tower had already been erected. This makes the decision to place a different cabin design on Kepal (a design clearly suitable to take glass panes) hard to understand. The reader will note that Carlotta's costs for glazing materials was borne by Manjimup Division, but as Carlotta was at that time in Kirup Division they would have paid for the necessary labour from their own books. Carlotta and Glenoran - both having the simpler cabin design shown in the plan - were fitted with basic frames attached to the cabin ledge into which the glass was slotted.

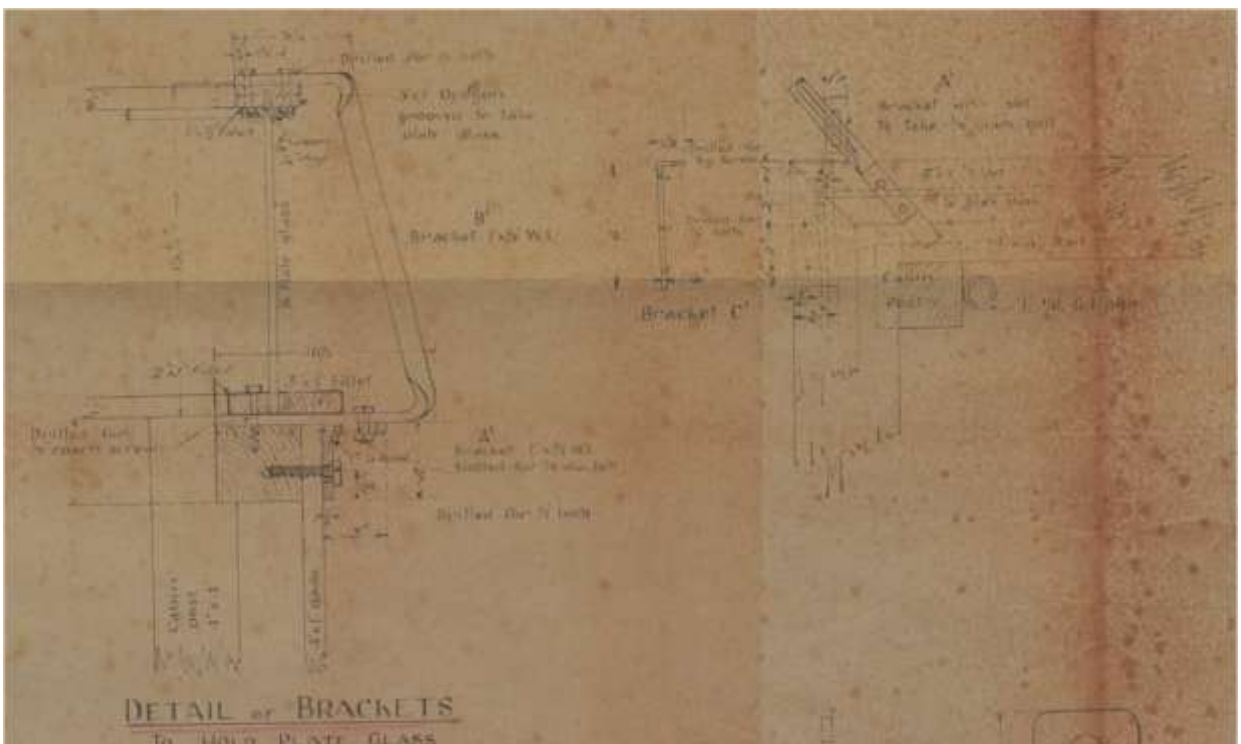
Despite the lack of archival information about this period it's undoubtedly true that as towers had risen ever higher over time, sufficient concern had probably been flagged along the way that glazing would be a very useful addition - something that may have been camouflaged by having the gradual build of tower heights occurring over such a short space of time. By the time tower heights had risen to 125ft the clamour was something that could no longer be ignored.

### **A perfect ten**

Tower sections had been steadily increasing in number with each passing year, and now they finally reach double figures - the 10-section, 140ft Grevillea Tower. The contract was signed with the same Laurie Jones who ferried young Bill Membry to safety following his Kepal accident just a year ago. It was signed the day after Prime Minister Robert Menzies addressed the nation to deliver the news that Australia was now at war - the 4<sup>th</sup> of September 1939.

Declaring wars doesn't change everything overnight (especially when at that stage the escalating conflict was physically nowhere near Australia), but we are now entering a period when, slowly but inevitably, priorities will start to shift right across Australia. The Forests Department would not be immune from this, and manpower, money and materials would have new places they would need to be dispersed to as war imperatives started to bite. Grevillea Tower would very much be the last of the current generation.

In many ways, the Grevillea cabin was a simple design with clean lines. Modern drone footage shows what it looked like (albeit with the plate glass windows no longer present), and in fact the bracket arrangement used to secure the glass panes ('British polished plate glass' - 15" in height, with two sheets 9' 0" long and two sheets of 8' 11" according to notes on the plan) was perhaps the most complex part of the cabin structure. Bearers were placed at the tops of the legs, and a separate plan table would have been in the cabin when it was in service.



Nothing has survived in the archives explaining why the integrated plan table concept was abandoned for Grevillea, but psychologically having more of the cabin seemingly supported by the legs and framework (i.e. less of the cabin 'hanging over the edge') must surely have been reassuring to any new towerman about to make his maiden climb up the highest tower in Western Australia.

According to the Heritage Council of WA report on the site (Place Number 17614) *“It is now known to be the tallest remaining all timber fire lookout tower, standing at 42.7 metres (135ft) high. The tower was in use from 1940 until 1975”*. The author has not been able to validate that height claim (it is certainly true for Western Australia though), and would welcome any additional information from readers as to where Grevillea fits on the all-time list of heights of all-wooden fire towers.

Surprisingly, and sadly, such a magnificent engineering achievement never received a single newspaper story either during erection, or when it opened. After the arrival of Grevillea the southern section of the ‘tower map’ would now look like this (Grevillea is the white symbol):

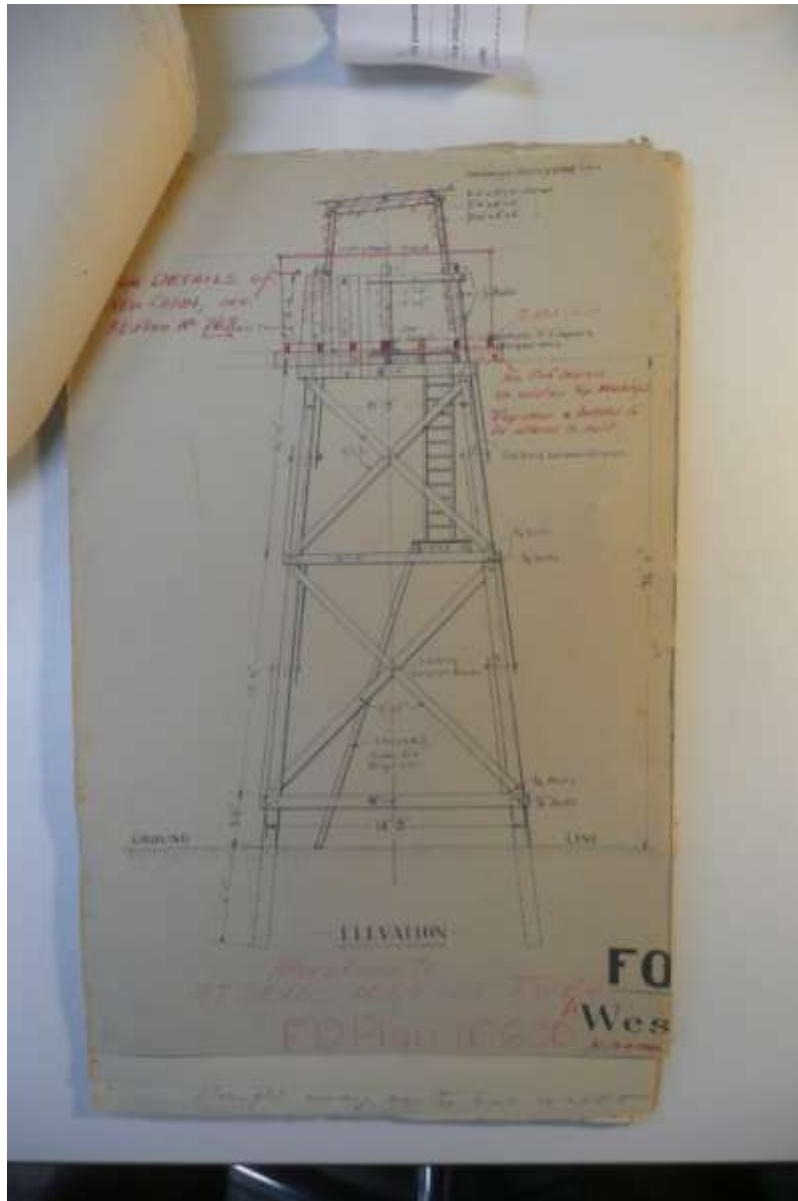


## Renovations

The reader will have noted that during this explosion of towers, design deficiencies had been regularly discovered once things had moved from drafting to the physical world, or where new advances in thinking uncovered shortcomings of earlier thinking. Regrettably, many of those ‘adjustments’ - if indeed they were ever recorded, are now lost in the modern day. Coupled with a paucity of dated, useful photographs taken over decades, it means in most instances the full story of a particular tower can never be told. One example however *does* remain in the archives - one which covers the previously-mentioned subject of plan tables retrofitted to towers originally having cabins of a size more suited for an instrument stand. Correspondence from October 1940 explains:

*The small 7' x 7' crow's nest (sic) on Solus tower is uncomfortably small, owing to the fact that it overlooks both Dwellingup and Kelmscott Divisions, & requires a plan board much larger than it can at present accommodate. Removable extensions have been used on the plan board for some years, but these have not been altogether satisfactory, and in any case do not cover all the country to N & S. Both Mr. Wallace and myself are anxious to have the plan board extended as this is a very important tower for both of us. It should be possible to enlarge the top, at small cost, & I would be glad if this could be done before the next fire season sets in properly.*

The memo was signed by "A.C. Harris, D.F.O". Remember the name - he will return later in the book (as will Roy Wallace). The result would be this:



which subsequently was neaten-up and became F.D. Plan No. 762. This rough, hand-drawn sketch is reproduced here as - seeing as it is a copy of the original 26ft plan being drawn over - it shows very clearly just how big a change in usable cabin area was to be had by going to the new cabin design.

Thus, we *know* that Mt Solus got a new cabin in 1940/1 (so, less than a decade after it was erected) - and we know *why*. No doubt many other modifications of this sort took place over the years and, sadly, most of those will remain lost in the mists of time.

Regrettably, no photo has ever been found showing the Mt Solus tower in either its original form or its appearance with the larger cabin.

## A pedant's picnic

Here is a newspaper story from the *Western Mail*, from July of 1941:

# High Above the Trees

**TOWERING** above the surrounding trees, this karri serves as an ally of man in guarding the vast expanse which may be viewed from the look-out at the top of the tree. Situated on the Manjimup Pemberton road, the Diamond Tree look-out, as it is called, was built by the State Forests Department.

The observation hut is 170 feet above the ground. It had to be built on a framework extending above the height of the trunk of the tree, so that the view obtained was not obstructed. It would not have been necessary for the look-out to have been so high were it not for the leafy nature of the country, which afforded no vantage points where a lower structure would have been effective. In order to reach the hut, the towerman had to scale an improvised ladder constructed by driving 3fr. galvanised steel spikes into the tree at intervals of 1ft. 3in. Constructed of timber hewn from surrounding trees, the observation hut contains equipment for sighting and locating fires. Binoculars, maps, a direction and range finder, and a telephone connector to other fire look-outs and to the divisional headquarters are all at the disposal of the towerman.

Smoke from a fire 10 to 15 mile away may be detected from a look-out.

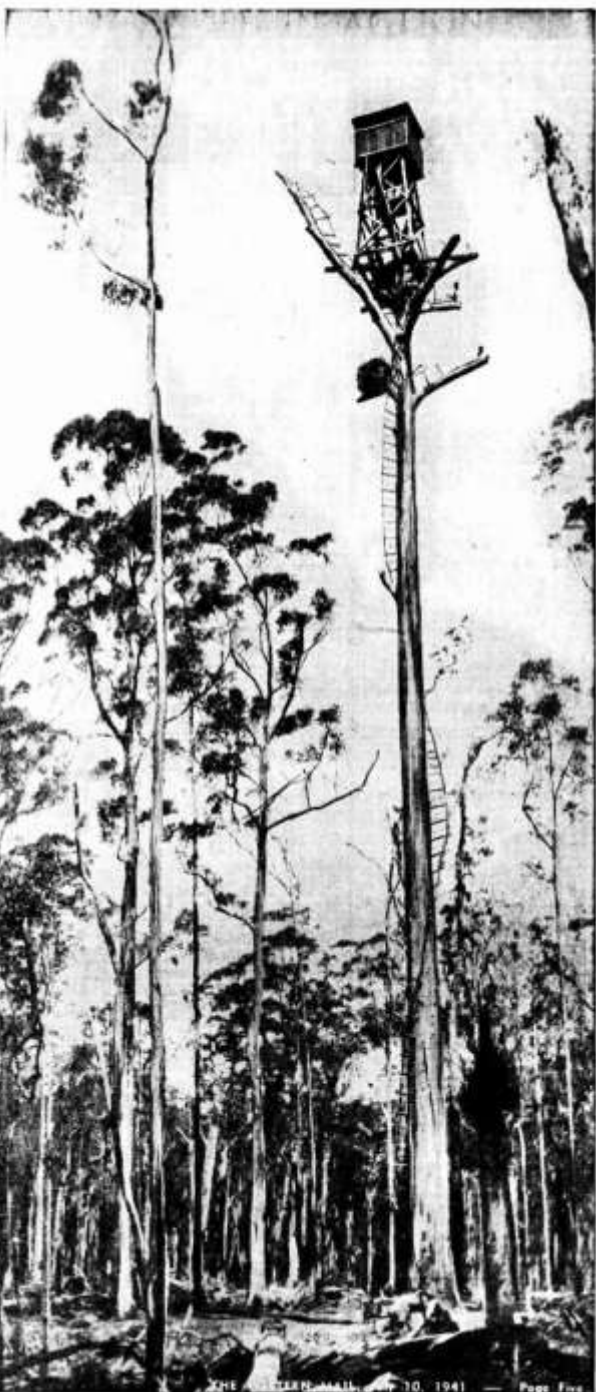
Completed at Christmas, 1940 only a little over three weeks had to be spent to convert this forest giant into a fire look-out with a greatly increased value to the State forest industry.

This is not an isolated post to guard thousands of acres of otherwise unprotected forest—it is merely one of a system of 26 look-outs extending from Sawyer's Valley to Pemberton. Of the look-outs, 20 of them are man-built towers, while the other six make use of trees in their construction. The total acreage viewed from these look-outs approaches three and a third million although their main work is to protect the 500,000 acres of regenerated forest under State care.

The tower-men work as a team and not individually. The smoke from a fire will usually be visible to two or three look-outs, because the towers are so spaced that they are usually not more than 10 miles apart. When the smoke is sighted the tower-man stationed in the look-out finds the direction and approximate distance of the fire from his look-out and phones this through to divisional headquarters. This is also done by any of the other look-outs in the vicinity, and the consequent cross bearings on the fire give the position of the outbreak to within a few chains.

Divisional headquarters then detail men who are normally engaged in caring for the managed areas, to form a fire-fighting squad to quell the outbreak.

The efficiency of the methods used by the State Forest Department to guard this State's timber is shown in that of the 160 fires which occurred in the managed territory of State forest half of them burnt over an area of less than one acre.



THE WESTERN MAIL, July 10, 1941 — Page Five

Call me old-fashioned if you must, but from where I'm sitting that looks suspiciously like a tower perched on top of that tree.

Diamond Tree is the point where the author breaks with his stated promise not to fiddle-about with Dave Evans' book *Lookouts of the Karri Country*, because I reckon he's 'stolen' one of mine - and I want it back.

It is called today *The Diamond Tree*, but the pedant in me even wants to take issue with that - because actually, it isn't. The Diamond Tree was close to where this lookout tree is to be found, may or may not still be standing, and had nothing whatsoever to do with fire lookouts.

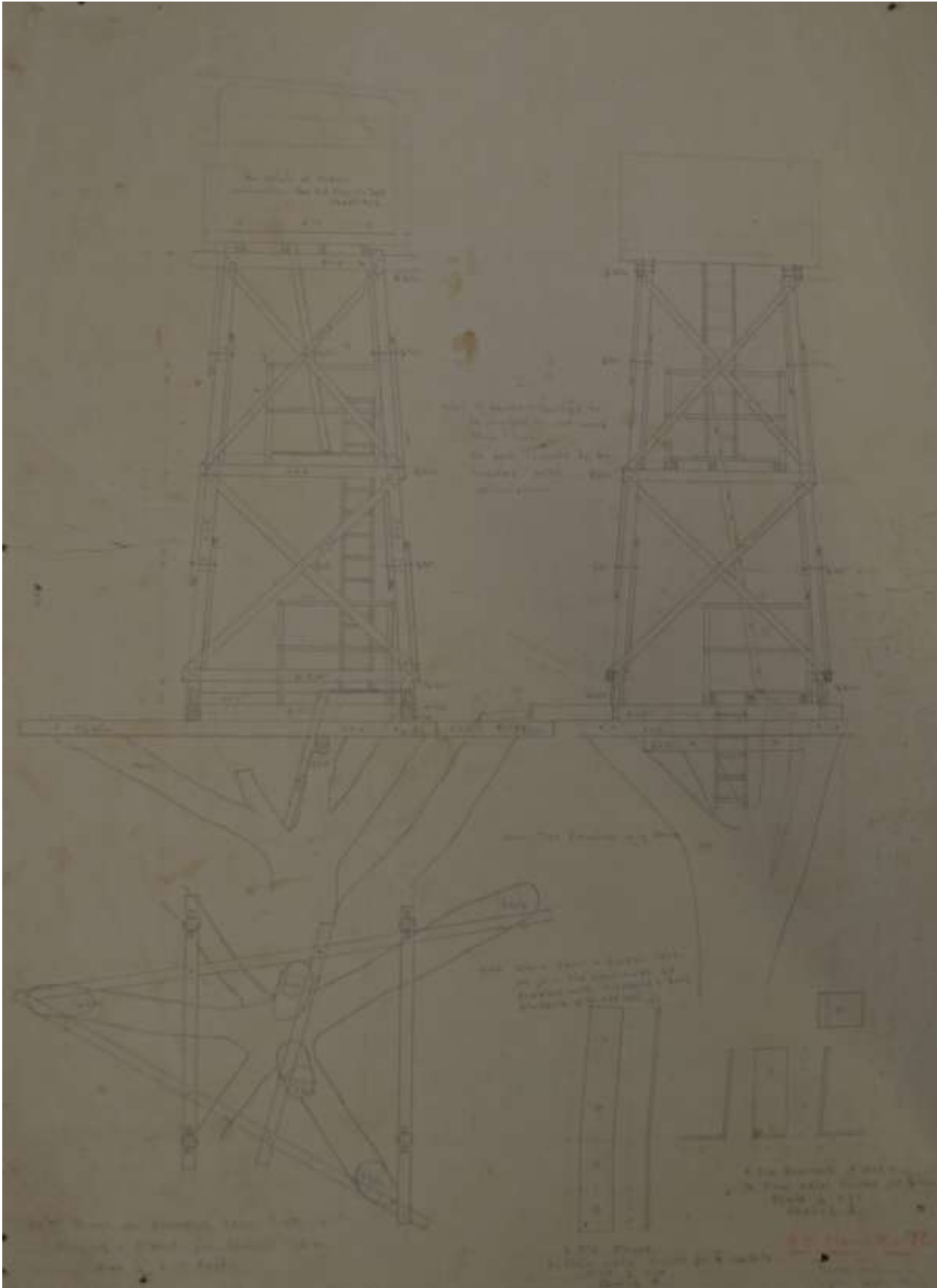
What was the Diamond Tree was a karri tree, reputed to have been located somewhere at the head of what became known as Diamond Tree Gully, and was blazed with a diamond symbol way back in the latter part of the 1800s by someone as a marker in the forests that people could use to ascertain their position. A young John Forrest is one person alleged to have been the engraver, but in newspapers from much later 'old-timers' haggled furiously that this was incorrect, and then proceeded to give various 'true' stories about who it actually was who marked the tree.

Regardless of 'authorship', Diamond Tree became synonymous with the locale, such that when the railway line was extended southwards from Manjimup to Pemberton in 1913, the siding in this area was called Diamond Tree. A small settlement of the same name existed there in the first half of the 20<sup>th</sup> century, and when the Forests Department eventually got around to surveying and naming forest blocks in the area they called one of those blocks "Diamond 1". Just to throw a small spanner in the works, there was also another forest block south of today's Vasse Highway (the road linking Pemberton back to the South Western Highway - Highway 1), that they called "Diamond 2".

A common practice with lookout naming was, in some cases where a name didn't immediately come to mind, to go by the name of the forest block it was located in. So, because this lookout was in Diamond Block (strictly speaking, Diamond 1 Block), it became Diamond Tree lookout. Not "The Diamond Tree".

The author admits to now feeling a certain affinity with those other old, haggling men from days past, but for the reader's sake will now (thankfully I'm sure) refrain here from any further 'raging against the dying of the light' on this subject. The spleen has been vented.

Now, during the course of tree lookout development, the viewing structure on top had evolved with subsequent builds from originally being a 'crow's nest' to a semi- or fully-enclosed cabin. Either type was located in the upper branches of the tree, with those branches shaped to form a virtual 'cradle' that the simple structure fitted into much like something placed in an upwardly-pointing hand with fingers splayed. Diamond Tree was something very different. Because crow's nests/cabins affixed atop trees always faced a unique set of branchwork they needed to be fitted into, they were built by artists. A ground-based tower's cabin by comparison is built by a tradesman (and no disrespect is either implied or consciously directed towards tradesmen here). With Diamond Tree the artistry is still to be found in the wonderful scaffolding affixed to the uppermost branches which was able to support not merely a cabin, but a 20ft tower with the massive increase in weight that such a structure entailed. The following plan (F.D. Plan No. 765) shows the tower itself and also the clever arrangement of timbers sculpted to fit onto the trimmed upper branches to bear the load. It is assumed the plan was drawn *after* the construction had been completed as a record of the work.



Diamond Tree is usually classed as simply being a “tree lookout”. It is, but it is also certainly worthy of being considered as being so much more.



## Swansong

The reproduced newspaper article (above) was published in July 1941. If Kim Kessell ever saw it, that would have only happened because a copy had been mailed to him. Diamond Tree would be his last 'build' and, as will be explained in the next chapter, two months previously he had moved on to other things.

Kessell is described at the end of his Australian Dictionary of Biography entry thus:

*An able sportsman, 'Kim' Kessell was ever urbane and courteous, and often charming. Many found him aloof, some self-effacing. His very ease of style might have contributed to his historical standing being unduly small. Yet, in all he did, Kessell went beyond supreme competence towards creativity.*

The reader will have noticed that whilst this is a chapter about Kessell, he seldom appears directly in it - although his presence is always in the background. Often being reported in newspapers as attending the opening of a new tower, he seems to limit himself to enjoying the satisfaction of seeing a job well done, and leaves any acclamation to others. The biography entry above appears to be not only gracious and kind (as any good eulogy should be), but also accurate.

For a man who took over running the Forests Department in his mid-20s, he left behind a surprisingly prolific output which was generated under his stewardship.

## A question of numbers

Before we bid Kim Kessell adieu, there is a small administrative matter to address. Back in the 'galaxies' section of this chapter reference was made to the status of tree lookouts in official inventories. The following quote appears embedded in the Introductory Remarks section of the 1936/7 Annual Report (p. 6):

*The Department now operates 725 miles of telephone line linking up 230 forest offices, houses and farms, with 16 fully equipped lookout towers, and 19 subsidiary towers and houses erected on high points.*

Regrettably, these subsidiary (or secondary) lookouts are almost never mentioned in Department documentation. The use of the term "towers" is also a matter of contention - they would have most likely been trees or tree platforms. We know they existed, and even where some of them were precisely located, but never yet has the number known about ever reached this 1936/7 figure of 19 - even if the assumption is made that some of them *may* have included the handful of larger trees being used at this stage. They are, in some sense, the part of the story *not* being spoken about in this book. It will also not have escaped the reader's attention that in that 1936/7 comment there were actually more of them at the time than the structures that have been the subject of this narrative. If there ever was a list of what these subsidiary lookouts were, it has long since found its way to landfill - and the modern researcher is left with only a patchy collection of possible or likely locations.

In the 1939/40 Detailed Annual Report, under fire control statistics, a figure of 19 is given for “Fire Towers”, without providing any names. Those nineteen names can be obtained by the reader going back to the start of this book and counting all the tower names that have been supplied up to and including Grevillea (try it out).

In the 1940/1 Detailed Annual Report, the corresponding page changes the heading “Fire Towers” to “Fire Lookouts”, and a massive jump in the number (again without names being given) takes it up to 27. Diamond Tree was erected during the intervening period - which explains one of the eight additions. The other seven are assumed to be the recently built fire lookout trees (and the author has compiled a tentative list as to which ones they may be), and thus the galaxies have not only now officially collided geographically, but administratively.

Clearly Diamond Tree (by being part-tree, part-tower) was the catalyst for some serious soul-searching around this time as to whether what was being reported up until now indeed reflected reality. It appears the answer to that was “no”.

So, up to seven lookout trees (plus Diamond Tree) got added to a new-look official list in 1940/1, but the reader will remember that only a few short years previously there were nineteen “subsidiary lookouts” spoken about and, at best, only seven of those have now made the cut.

Time for the reader to now pull out Dave Evans’ book and try some lookout tree detective work.

With a touch of the dramatics, the author refers to this time as “The Great Cull”, when the whole gamut of extant lookouts was administratively divided into those that existed and those we won’t mention. Fire lookout trees - subject of course to acceptable parentage and a willingness to let bygones be bygones, were now warmly invited into the family. Legitimate half-brothers and other assorted bastards would henceforth be banished. For a specialist genealogist like the author, this makes construction of a family tree (and yes, that was intentional) very problematic.

What will further add to the problem later on is, while most of those culled lookouts were probably only sporadically utilised (and likely for nothing more than to supply a confirmatory bearing for a tower’s observation), in subsequent years - as the reader will discover - some of the towers built and added to the official tower list ended up (through no fault of their own) having very similar profiles.

The million-dollar (pound?) question then becomes; how do you keep some later ‘part-time’ towers on the list of total towers when you’ve consciously culled an unknown number of others from the same list previously? It is what induces cold sweats and possible biliousness in a Western Australian tower researcher every time a curious person ever decides to ask what they consider to be a simple question - *How many towers in total were there?*

The author usually replies “lots”, and then seeks to steer the conversation in a different direction.

## **Chapter Three**

**Bill Stoate**

## **Introducing a new Conservator**

The Forests Department Annual Report for 1940/1 was the first in almost two decades to not be issued under the name of Kim Kessell. Deputy Conservator of Forests, T.N. ("Bill") Stoate was the reporting officer, and explained in the document's Introduction:

*The urgent necessity to co-ordinate the ever increasing demands for Australian timbers with the complex problems associated with both interstate and international trade has led to the appointment of the Conservator of Forests (Mr. S.L. Kessell) as Commonwealth Timber Controller. The State Government loaned his services for this purpose and he took up his duties in Melbourne at the beginning of May (1941).*

Because Kessell was "loaned" to the Commonwealth he would, in theory - if not in practice, still be the Conservator and Bill Stoate would assume the title of Acting Conservator for the duration of Kessell's absence on his important war-related activities over east.

The war at this stage had yet to be joined by Japan, but that was only months away.

As it turned out, Kim Kessell would remain over east on Commonwealth duties until December 1945, at which time he announced his resignation as Conservator and his acceptance of a position as Managing Director of Australian Newsprint Mills Pty Ltd. He would not be returning to Western Australia.

One should spare a thought here for Bill Stoate - he performed the acting role for over four years presumably under the impression that one day 'the boss' would return to carry on from where he had left off. He was, in effect, there 'keeping the seat warm' whilst Kessell was away, without the certainty of tenure, of being sure just how much independent scope he could bring to the job, and with onerous manpower and financial constraints being imposed as the war dragged on. It would be an invidious position he found himself in, and the abruptness of Kessell's decision in late 1945 advising that he would not be returning must have hit him as a surprise (perhaps not a very welcome one). He would be officially promoted to Conservator on 1 February 1946 to begin the legislated seven-year term of the position. His total time in the Conservator's chair is thus one of two parts - a four-year wartime 'apprenticeship' in an acting capacity, followed by a full term as Conservator.

## **First actions**

Some months after he assumed the chair, in September of 1941 a letter was written by Bill Stoate to the Secretary of the Main Roads Department in Perth. In part, it read:

*We have under consideration the construction of a wooden fire lookout tower of 135ft in height near Kirup, similar in design to other towers of varying heights which have been erected in other parts of the South West for the detection of fires.*

So soon after Kessell's departure, this strongly suggests that what would go on to become Kelson Tower (for this is what is being referred to) was a 'Kessell project' which remained uncompleted due to his secondment to Canberra. The height mentioned (135ft) indicates the variability that applied when different people quoted tower heights - it should read '140ft', as Stoate mentions later in the letter that it is to be a 'twin' of Grevillea - which was officially classed as 140ft. Stoate goes on to give a breakdown of costs for Grevillea (a total of £775), and then asks:

*I should be glad to know if your Department would be interested in constructing the proposed tower at Kirup, for this Department, and if so whether you could erect it for the same cost as for the Grevillea Tower.*

This seems to the author to be a strange way to go about business. I suspect Kim Kessell would not have written a letter, but invited (or visited) the head of Main Roads for an informal chat about the idea to determine what could or could not be done before committing himself to paper. It appears to me to be an approach being taken by someone not overly familiar with how the 'you scratch my back, and I'll scratch yours' wheeling-and-dealing of government departments can work. No reply to the letter appears in the documentation surviving at the State Archives.

The story takes an even stranger turn when one month later Stoate pens a letter to the Inspector General of Forests at the Commonwealth Bureau of Forests in Canberra. It begins:

*We have under consideration the erection of a fire tower in the Mullalyup District in the Kirup Division, to complete the chain of lookouts from Mundaring in the north to Pemberton in the south, and after reading the article on the pole lookout contributed by Pryor and Wickett to "Australian Forestry" it has occurred to us that such a tower would suit our purpose.*

*The height of the tower would need to be at least 110ft, and could vary from 110 and 125 feet. A braced tower of the same height placed on a concrete base would cost at least £800, which is considerably more than the estimate of £200 mentioned in the above article.*

Stoate then asks if he may be put in contact with Mr. Wickett (who worked for the Commonwealth bureau), and a series of letters are exchanged over several months until the matter peters out unresolved in June 1942.

A number of points present themselves from this unusual run of correspondence.

The reader will note that the desired height (or type) does not seem to be fixed, varying as it does between a Grevillea-type structure and the later pole tower proposition.

Stoate makes frequent use of the pronoun "we" in his correspondence, but it is not at all clear who "we" are. The degree to which this is being driven by him and him alone without due reference to the foresters who will build, man, and maintain any structure isn't immediately apparent in the documents kept at the State Archives.

I suspect the 'chopping-and-changing' nature of the thinking process would have been very unsettling to those members of staff more accustomed to Kim Kessell's decision-making style and the fruitful output that arose from that.

Although a futile dalliance this time, the seed had nevertheless been planted within the Forests Department concerning the Wickett pole tower design. It would take almost two decades to germinate.

Perhaps chastened by the experience of not being able to achieve any meaningful tower construction activity during wartime, according to surviving State Archive documentation Bill Stoate's attentions turned to other issues for the duration of the war. The subject would only next reappear once hostilities had ceased.

### **1946 - A year of living dangerously**

Although back in 1941/2 the only site mentioned was Kelson, it seems that by 1946 both it and another location south of Nannup were now being planned for. This more southerly site (to become Dickson Tower) was the first to be completed, and not without controversy and a degree of dissent.

It will be remembered that on the timeline of tower building during the later Kessell years, that after the erection of East Kirup, a sole 100ft design was placed at Mornington. Straight after that, the three 125ft towers went in at Glenoran, Carlotta, and Kepal. Beyond those, a single 140ft design was erected at Grevillea. The trajectory was for ever higher towers as confidence grew in building them.

For reasons perhaps best understood by Bill Stoate, he decided that the smaller pre-war 100ft design was now to be resurrected. This seems to have caused a measure of disquiet, and an October 1946 handwritten memo sent from Don Stewart at Manjimup Office (at that stage the Dickson area was part of Manjimup Division - it would only become part of Nannup when that division was created later) implores:

*Provision of a 125ft tower is strongly recommended. A number of trees measured for total height were from 100ft to 110ft around this point. If a 100ft tower were built, it would necessitate the felling of a number of trees around it, and then only give a view 'just' above the canopy. I feel sure the extra cost of a 125ft tower will be more than amply repaid by the greater efficiency of it. [Glenoran is an example of a tower 20ft too short with restricted view due to local canopy in some areas].*

Stoate's view was conveyed back to Stewart in a curt reply eight days later:

*All the necessary arrangements are in hand at Head Office and you can carry on with the clearing of the site. It is important to leave a tall tree for hoisting.*

*I am not convinced that a 100ft tower would not be sufficient. The East Kirup tower is on a flat ridge and is very satisfactory.*

*Would you please discuss this with Mr. Bednall.*

*The advantages in constructing a 100ft tower are very great.*

*The sending of a plan to you will be held up pending your discussion with Mr. Bednall. This is urgent.*

Even at a distance of almost eighty years, the reader can feel the heat being generated.

Almost three weeks later a further letter is sent to Manjimup, opening with:

*It has been necessary to adjust drawings of the standard 100ft tower for concrete foundations and a new type of cabin roof.*

One can only guess Don Stewart's comments upon reading this. An "urgent" plan from three weeks ago now needs to be amended before it becomes urgent again. This unfolding situation seems to the author to bear no hallmarks whatsoever of how Kim Kessell would direct the construction of towers.

As Dickson Tower's construction was nearing completion in March of 1947, Don Stewart made one final, valiant attempt to save the situation:

*Mr. Stoate,*

*It is suggested that it is still not too late to increase the height of this tower. Surely it would be possible to design <illegible> to increase it 15ft, or even 10ft and, if necessary, build a smaller and lighter 6' x 6' cabin (as on Gardner and Gloucester trees), instead of the very heavy 8' x 8' cabin for the present tower. I am sure that an extra length of karri or windmill iron could be superimposed on to the present legs which are 5" x 5" on top and have two heavy 8" x 4" bearers, about 4' from the top.*

There is nothing in the archives to say if this letter was ever replied to, and recent close-up drone footage (2019) of the cabin area of today's abandoned Dickson shows no alterations from the standard plan like the extra work asked for. An earlier 1983 photo confirming this appears below.



Dickson Tower would continue to be considered undersized over the ensuing years, and plenty has been said in commentary of its inability to mesh properly with the Nannup area towers to the immediate north. On the plus side, for as long as records of manning dates were kept it was always included in that list for every summer, so it was never prematurely discarded for detection purposes.

So, as a sort-of 'Back to the Future' experiment it certainly was never a failure, but the reader is left wondering if so much intransigence and ill-feeling justified the result. The steady, onwards-and-upwards march of tower heights that was a feature of Kim Kessell's 'builds' had now come to an end.

## A new size of tower is born

As mentioned, Dickson and Kelson seem to have been set in motion about the same time, with Dickson (for whatever reason) being the first to be finished. In early July 1947 a memo is sent to the Head Office Drafting Department:

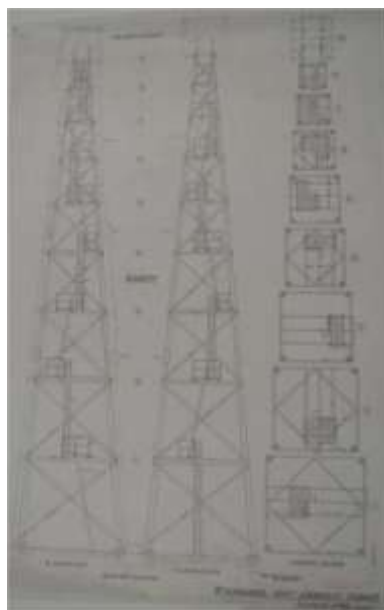
*Mr. Stewart recommends that the Mullalyup Tower (i.e. Kelson - it was to be in the Mullalyup forestry block) should be 110ft in height with a maximum length of poles of 45ft. Will you please prepare a plan on this basis and forward to Mr. Stewart, so that the necessary materials can be ordered and arrangements made for the getting of the poles.*

Interestingly, it was not from Bill Stoate, but from Assistant Conservator A.C. Shedley - who had recently returned to the Department following three years secondment as Deputy Controller of Timber for Western Australia during wartime.

The reader will also note that Don Stewart has gone from having his recommendations on tower height being overridden to now being the apparent authority on the subject. Also surprising is that Kelson would be in Kirup Division, and Stewart was the D.F.O. of Manjimup Division.

There is clearly a good story to be told from the wash-up surrounding the Dickson brouhaha, but sadly that is one that has not found its way into the documentation sent to the State Archives for preservation.

An interesting question arises at this point. The Department had plans drawn for towers in sizes of 100, 125, and 140ft ('small', 'medium', and 'large' if you will). Why was it considered necessary to now go to the trouble of creating new plans for another size midway between 'small' and 'medium'? When Don Stewart made his 110ft recommendation, did he assume that people would look at the existing catalogue of available sizes and conclude for themselves that he was actually expecting a 125ft structure? We will never know the reasoning that went on at this time, but the result was that a plan for a new 110ft tower design (F.D. Plan No. 892) was born on 19 September 1947:





The tower would have 9 sections (the same number as a 125ft tower - which makes life interesting for modern-day investigators attempting to identify any tower from an old photo. Before now, individual sizes of tower had a unique numbers of sections), *not* have the legs embedded directly into the ground but rather placed on concrete footings, and (at least for this version) utilised the existing principle of lowering the bearers from the very tops of the legs so that the uppermost section of legs above the bearers would form the legs of the plan table inside the cabin. A difference from the 125ft towers was, because the vertical height of the first section was shortened, there would be no need for a bracing pole under the ladder from the ground to the first landing (which had been placed across lengthwise on 125-footers between the adjacent pair of cross-braces).

There is a further point of interest for any readers who wish to delve deeper into numbers. Although towers were given 'round-figure heights', those numbers are not *actual* measurements. What was quoted was not a vertical height, but the length of the spliced, inclined leg rounded upwards. Those actual lengths for 100ft and 125ft towers were 95' 7" and 121' 0" respectively. For this "110ft" tower the inclined leg length was 109' 0". Doing some simple trigonometry, it can be shown that the *actual* vertical height of a "110ft" tower from ground to floor of cabin is only 107' 10" plus whatever height the concrete footings that the legs sat on extended above ground level.

As it would turn out, eventually the 110ft size of 'tall tower' would become the most-used type among the Forests Department's +100ft lookout fleet - a total of six being built (compared with two 100-footers, three 125-footers, and a sole example of a 140-footer). Kelson would, in the early 1970s, also achieve a further 'first' when it became the only wooden tall tower ever to be relocated to another site to be reused. Ironically (or perhaps mischievously), the relocated Kelson would be renamed Stewart Tower.

### **A flurry of activity that went nowhere (1) – Giblett Block**

A letter from F.C.O. Milesi to Mr. Meachem (position not stated) at Manjimup, August 1950:

*As discussed with you recently, will you please go ahead and investigate the possible lookout tower site in Giblett Block off the Seven-Day Road.*

*I understand you have sufficient pegs available to peg a suitable tree (to use an as initial means of determining the view gained from an elevated height).*

*It may not be possible to have a tower on this site for the forthcoming fire season, but a tower in this locality should be of considerable usefulness.*

Big Tree lookout was irreversibly damaged by fire somewhere about this time. The vague location given (near to the Big Tree site, but further west) suggests that a possible tower was an active consideration at this time. Regardless of whatever Mr. Meachem reported after his climbing (which is not included in any archival material), nothing further was ever done regarding Giblett Block.

## **A flurry of activity that went nowhere (2) - Curtis Hill [also referred to as Mt Curtis]**

On the 14<sup>th</sup> of September 1950 the Conservator wrote the following to the Under Secretary of Lands, a Mr. Paine:

*I understand from the Senior Divisional Forest Officer that the top of Curtis Hill (with the co-ordinates -32.211347, 116.113719 - if the reader is interested in exploring the location) has been cleared with the exception of one tree which was left to give a view of the surrounding districts.*

*It is proposed to erect a tower approximately in the position of this tree, but owing to the difficulty of obtaining the required material, it may be some time before the tower is erected.*

Accompanying this correspondence is a note to the S.D.F.O. at Dwellingup that Mr. Paine was “...very concerned as Curtis Hill was a primary point for triangulations...” and that “It appears that if the tower is erected too close to the rays, shadows will cause deflection (sic) of the light”.

From a later 1952/3 listing of existing lookouts and proposed additions (so, more than two years after the above correspondence) it is known that Curtis Hill was envisaged to be 60ft high, and estimated at £890 (£450 for materials and £440 for construction).

Although it is interesting from the historical perspective to learn of a type of “subsidiary lookout” being at Curtis Hill, this burst of activity amounted to nought. No tower was ever built on Curtis Hill.

## **A flurry of activity that went nowhere (3) – the “Western Boundary” [Marrinup] tower**

The idea of another tower north of Dwellingup (and close enough to the escarpment to cover the coastal plain) is mentioned sporadically in correspondence for several years in the late 40s. In May 1952, the following is sent from Head Office to Forester Mc Coy at Dwellingup:

*As discussed with you when we inspected the Marrinup ridge for a tower site, it is difficult to say which of the three ridges would be best for the tower.*

*I think it is a case of having to sacrifice a certain amount of visibility in either case.*

*I feel that in the long run the site where you have cleared the lanes will give us the best all round service and some of the disabilities can be overcome by building a higher tower.*

*In any case a 60ft tower would involve a very considerable amount of clearing that would be avoided by a taller structure.*

*The standard taller tower is 110ft and I am sending you prints of this.*

On the same 1952/3 actual and proposed tower listing mentioned above “Turner-Marrinup” is budgeted for £1,775 (£900 for materials and £875 for construction).

A brief note is made in the 1953/4 Detailed Annual Report kept at the DBCA Library that "...the foundations of Turner Tower north of Dwellingup were put in during this year".

As will be covered in the next chapter, this was the reporting year when there was to be a change of Conservator. After this point Marrinup (Turner) Tower disappears completely as a project - presumably cancelled by the new Conservator before any tower construction could be added on top of the footings. The author has been to a likely area east of Pinjarra to search for these footings based on an annotated map located at the State Archives, but without success. Perhaps someday someone will stumble across four curious concrete blocks out in the bush and solve the mystery.

What is doubly perplexing about this 'now you see it, now you don't' tower project is that, in 1961, during the horrendous bushfires of that year, the 26ft Teesdale Tower (just outside Dwellingup) was burnt to the ground. Initially it was to be rebuilt, but never was. Despite the Teesdale site not being resurrected, it appears no thought was entertained then as to using the Marrinup/Turner footings already in place several miles to the north to construct a replacement for the area there. An inescapable impression is created that perhaps "Turner Tower" must have been a *real* folly.

#### **And then, a flurry of activity that went somewhere - sort-of...**

In the same 1953/54 Detailed Annual Report mentioned above is an equally brief note that "George Tower which was built last year was manned for the first time this season". This places the new tower on George Hill firmly in the orbit of the final part of the Stoate era.

No documentation can be found regarding this tower apart from a single mention on the 1952/53 listings sheet which places it in the "Proposed" column as being scheduled for 60ft with a cost of £890 (£450 for materials and £440 for construction) - the same as Curtis. For the first time in a decade and a half, the old standard plans used to construct Mt Ross and Yabberup were dusted-off and consulted - even to the extent that the old pre-war type cabin was constructed and installed rather than the more recent designs now being used, which gave the tower an 'old' look for its time.



The interesting question is surely, why was it ever built? On 1 July 1952 the *West Australian* newspaper reported that a now abandoned Hakea Mill, the nearby former settlement, had been sold by the State Sawmills to a Fremantle syndicate and it was being dismantled and removed. Activity in the area appeared to be minimal. The reason for only now choosing to put a tower slightly west of Boddington seems hard to fathom - especially without any archived documentation being discovered in the vaults supporting its construction.

This would be reflected in the manning data being compiled each year which started about this time. With one exception, every fire season thereafter George Tower was recorded as "Not manned", "Manned intermittently", "x days only", or something similar. The exception was for the 1960/1 season following the devastating fires when it was activated on February 6 (after the fires had occurred) and remained manned until March 28. The following year it again wasn't manned, and that situation seems to have remained until it would have been abandoned sometime in the 70s.

It therefore has the 'honour' of (unintentionally) becoming the first effective "subsidiary lookout" of the post-war era - built (and placed onto the official tower list), but never used for continuous duty during normal fire seasons.

#### **Mt Burnside - a lookout with a two-part start**

The last new tower lookout site worked on during the Stoate years actually started not as a tower at all, just as a simple cabin, and only graduated to tower status under the next Conservator. As such, it very much straddles the changing of the guard, but credit is given here to Bill Stoate as the 'originator' (of the site, if not the final product). As told in Dave Evans' book, the ground-level cabin was first manned in December 1952, but an inspection of the facility in January 1953 by Don Stewart found the height to be insufficient for the task. A tower frame in a brand new Forestry Department size (50ft) was designed and erected over more than a year (with the original cabin being placed on the new tower), and the 'finished' Mt Burnside lookout was manned beginning December of 1954. From the manning records that exist it is shown to have been utilised every year thereafter for the full duration of every fire season. It was made of karri timbers, and despite being 10ft lower than a standard plan 60ft tower, it too also had five sections from ground to cabin floor. It was mounted on concrete footings.

#### **And finally, on the subject of concrete footings...**

In October of 1947 the Conservator wrote to Mr. Wallace (D.F.O. of Dwellingup Division):

*Consideration should be given to placing the legs of our fire towers on concrete bases. The Collie Fire Tower (i.e. Collie-Lucknow) which was built in 1923 was designed in this way, but some of the towers built since have been constructed with piles which are inserted in the ground.*

*There are two big towers; one at Carlotta and one at Glenoran, to be dealt with, but before attempting these it would appear better to try with one of the 60' in your Division.*

*I have discussed the matter with Mr. Stanley but before visiting Mornington or Mt Ross with him, would like to discuss the matter with you.*

Below this correspondence is an additional line addressed to Don Stewart at Manjimup who was copied-in:

*I would like to discuss the matter with you*

This is confusing, as Dwellingup Division had no 60ft towers. The only two Forests Department 60ft towers (Mt Ross and Yabberup) were in Harvey and Collie divisions respectively further south, and it is unclear as to the degree of confusion existing at the time. Mornington (quoted in the correspondence - and in Harvey Division) isn't even 60ft, but 100ft. The 60ft tower at George Hill *would* be in Dwellingup Division, but that had yet to be built at this time. Unless Mr. Wallace had some authority over divisions beyond his own it is hard to reconcile the various pieces of this puzzle.

Nevertheless (and without any documentation in the archived files covering the intervening time period), in September 1948 a memo is sent to Mr. Wallace advising:

*Referring to your letter of the 6<sup>th</sup> instant, will you please go ahead with the cementing of the base of Ross tower; Mr. Stewart can give you the method he used on one of his towers.*

In September 1950 a further letter to Mr. Wallace appears:

*Further to my memo dated 28.8.50 addressed to Mr. Jones, copy of which was forwarded to you, it was decided years ago to build high towers on concrete bases. This was done in the case of towers in the Manjimup Division (Grevillea 130' (sic) and Kepal 125') built about 1939. Also two towers in the Kirup Division (Dickson 100' and Kelson 110') about 1947. In each case the foundations were specifically designed.*

*A print of plan F.D. 892 sheet 2 showing foundation for the 110' tower is being forwarded for your information.*

*A foundation for the standard 60' tower has not been drawn.*

*The general lines of F.D. 892 with adjusted dimensions with the smaller 60' tower could be followed.*

*It will be noted that old tram rail is used as re-enforcement. If this is not available steel rod (at present in very short supply) would be necessary.*

It is hard to work out what is going on here. Was Mt Ross not already cemented as per the 1948 instructions? Mentioning a 60ft tower seems to suggest so, and the confusion as to why Dwellingup Division is even involved in this still remains unresolved.

The author has been to the Mt Ross site (in October 2020), and whilst a small amount of historical evidence remains at the site of the hut used by the towerman, no trace was found of any above-ground concrete footings (although, the site was somewhat overgrown and the author did not have this information at the time, and so wasn't expecting to find concrete footings).

A former Forests Department employee from Manjimup who assists in lookout research has also since visited the old abandoned Glenoran site as well, and he too found no evidence suggesting the tower had ever been placed on concrete footings at some date.

Furthermore, this idea of 'retrofitting' those existing towers with their legs being inserted directly into the ground is not mentioned in any historical 'retrospective' on Forests Department activities the author has seen - which is surprising, as such an undertaking would surely be worthy of being recorded. Considering the not insubstantial challenges such a task as this would throw up, that suggests that - although it spread out over multiple years - this *may* be a mere thought-bubble that never eventuated in any form. The jury, although highly sceptical, still remains out on this point.

### **A closing evaluation**

We now say farewell to Theodore Norman ("Bill") Stoate, after he introduced himself as Conservator a bit more than a decade ago. Being a book primarily about fire towers, the author is aware that he may have painted a less than flattering picture of his abilities during writing this chapter. Whilst that is true, it also demands a postscript to allow a right of reply.

Regardless of whatever personality or skill deficiencies he may have possessed, Bill Stoate was not gifted fortunate times in which to showcase his wares. From the beginning and the unconventional way he ascended to the top job through to the post-war years when he was holding together an organisation leaking experience because other opportunities were now emerging for men to explore for employment, he dealt with issues Kim Kessell had not.

I have used Kessell's achievements as a yardstick here to compare Stoate to, but in many ways that is a very unfair comparison to apply.

Kessell took the job when he and everyone else he worked with were young and relatively inexperienced in the methods by which a serious Forests Department would need to be run. He learnt how to be a Conservator on the job, and without any long-standing pre-existing standard to be compared to, he made his own. He was blessed with good fortune as regards to any political interference. He somewhat paradoxically could even draw benefit from something as devastating as the Great Depression, as it provided him with many men eager to work which allowed for the opportunity to do all the catch-up work left undone by the non-decisions of the early 1920s. He had a blank canvass to build upon, and he covered much of it with his works.

Stoate was only two years older than Kessell (birth years of 1895 & 1897 respectively), but Stoate took the top job when he was in his mid-40s and no doubt already somewhat set in his ways. A widower since 1930, he lived alone in a hotel room in Perth, and apparently was comfortable with his own company. One suspects this, together with his love of academic, research-focussed forestry, meant that many of the parts of a married lifestyle which could allow a man some sort of distraction and 'off-time' away from the job were not open to him, and may have contributed to him being considered as some sort of 'meddler', or 'micro-manager' in today's parlance.

He was, in many ways, a very highly-regarded man. The following comes from his entry in The Australian Dictionary of Biography:

*He was happiest in the bush. Even there he always wore a neat suit and polished boots. Once, after a day's work, he helped to fight a karri wildfire. Removing his jacket and braces, and using his tie as a belt, he borrowed a shovel and toiled all night beside a bulldozer to build a fire-line. He returned to his office early in the morning. The bulldozer driver later asked: 'Who was that old bugger swamping for me last night - he wasn't bad!'*

Following a political hatchet-job (I can think of no other term to describe it) that led to his time as Conservator coming to an end, and which will lead-off the next chapter, he went on to work for many years as an internationally-respected forestry consultant.

Like Kim Kessell, he too died in 1979.

So, although perhaps not an overly productive time in Forests Department fire tower history when viewed alongside the cracking pace Kim Kessell set in his final years, there *are* sympathetic reasons that can account for some of that.

In fact, his greatest lookout achievements lie outside the scope of this book. Gloucester Tree, Beard Tree, Boorara Tree, Greenbushes Tree, and most probably (the exact year is uncertain) Somerville Tree were all completed on his watch, and Gardner Tree was also relocated early in his tenure. All apart from Greenbushes Tree were regularly manned lookouts right through until the advent of aerial surveillance in the 70s.

By way of balance for the somewhat critical tone the author has used when considering only fire tower progress during these years, a positive parting message is certainly owed to Bill Stoate:

As the renowned writer and poet Samuel Johnson is reported to have said in 1774 on hearing the news of the death of his very flawed (yet very talented) friend, the Irish writer Oliver Goldsmith;

*"Let not his frailties be remembered; he was a very great man"*

## **Chapter Four**

**Bluey Harris**



## **A rather messy time**

The end of Bill Stoate's time as Conservator was not pretty viewing. It begins as far back as May 1946 when Allan ("Bluey") Harris, D.F.O. at Kelmscott, resigned from the Forests Department to take a position with the newly developing Wundowie Charcoal Iron and Steel plant. He had been with the Department since 1926. Within two years he had risen to become General Manager of his new employer. Despite no longer working for the Forests Department, his work still kept him in close contact with many of its staff. He will soon reappear in the unfolding story.

The second precursor was the 1951 Royal Commission held into "Forestry and timber matters in Western Australia". Although little of this had any direct relevance to Stoate's running of the Department, he was called as a witness. An excellent summation of the issues involved may be found on pages 53-54 of Don Stewart's "Forest Administration in Western Australia, 1929-69" which is available for download via the DBCA Library website if the reader is interested.

The third factor in the gathering storm was the election of the Labor Party to government in 1953 under Albert Hawke. Because Stoate's fixed term was due to expire so close to the election, the McLarty Liberal - Country League (LCL) government which had been in power the previous six years did not choose to renew his tenure before then and the matter would be decided upon post-election. As it turned out, an incoming new Labor administration would bring with it a man by the name of Herb Graham as the new Minister for Forests. Graham was a former draftsman in the Forests Department who had resigned during 1943/4 after being elected to the Legislative Assembly.

Anyway, and with boys being boys, a good deal of backroom scheming then went on (which is well beyond the scope of this book to pursue - readers who are interested should make use of things like archived, on-line newspaper resources to follow the public story), and Bluey Harris quickly found himself heading a committee investigating his old boss, and pretty soon thereafter we get to read of this story in the newspapers:

### *REPORT BELIEVED ADVERSE TO CONSERVATOR OF FORESTS*

#### *Dr. Stoate Devoted Too Much to Technical Side*

*Perth, Aug. 25, 1953*

*An interim report adverse to the Conservator of Forests, Dr. T. N. Stoate, is believed to have been presented by the Forestry Advisory Committee appointed by the Minister for Forests, Mr. Graham, a month ago. The committee consists of Messrs A. C. Harris, general manager of the Wundowie charcoal iron industry; F. Gregson, executive officer of the Associated Sawmillers and Timber Merchants of Western Australia; and W. Hayes, secretary of the Operative Sawmillers' Association.*

*It was appointed some weeks after the Ministry had ordered the withdrawal of the calling by Dr. Stoate of tenders for sawmilling rights covering about 400,000 acres of forest country in the Nannup, Shannon River, Tone River and Rocky Gully areas.*

*Its appointment is believed to have followed fears expressed to the Minister by certain timber firms about the outcome of tenders.*

*The committee, it is understood, has now reported that Dr. Stoate has devoted himself more to the technical side of forestry to the detriment of departmental administration.*

*It is understood that criticism has also been expressed of allocations of forest country for sawmilling and for dairy farms in areas where clearing costs are uneconomical.*

Cutting a long story short; on the 19<sup>th</sup> of October 1953 the Forests Department had a new Conservator. His name was Allan Cuthbert ("Bluey") Harris.

Bluey Harris was 49 when he became Conservator (birth year 1904 - so, less than a decade separated Kessell, Stoate and Harris in terms of age), and is described in his Australian Dictionary of Biography entry as follows:

*Within the Department, Harris was seen as a hard man, someone it was best not to cross. He demanded high standards, had a low tolerance for error, and an acerbic tongue. However, 'Bluey,' as he was known because of his ginger hair and rubicund complexion, was a sound administrator, and a clever and ruthless negotiator, renowned for out-manoeuving political or professional adversaries.*

The author of that biography was well-placed to make those comments. He was Roger Underwood.

## **Back to towers**

After this extended deviation into flawed personalities and small-time political intrigue, it is about the point to get the reader back to the business of this book, which is about fire towers. Fortunately, Bluey Harris would be a good man to lead us out of this morass we seem to find ourselves in after Bill Stoate's stint at conservatorship.

As Roger Underwood stated, Harris was a "sound administrator". In the surviving records kept at the State Archives he doesn't seem to exhibit any of the overbearing intrusion from Head Office of the Stoate years. If Harris did ever push any location or design issues regarding particular tower builds, it certainly isn't to be found in the surviving documentation.

In fact, the author, after listening to an incisive audio interview with Harris (available on-line from the State Library of Western Australia) after he retired, is inclined to see Harris as the type of administrator who would be prepared to listen to any subordinate who came to him with a fire tower request. I suspect anyone who came without a well thought-out cast iron case, or who had failed to 'do the numbers' would be quickly found out and shown the door - probably with Harris' boot print on the seat of their pants. However, if Harris could see the merit of a proposal, and had screwed the proponent of the idea back to the bare bones as to things like cost, timing, etc, he would likely sign-off on the project and not insert himself into it as some sort of interfering 'advisor'.

True, he would probably be calling the proponent of the idea into his office early the very next day to find out how it was all progressing, and demand to know why it was taking so long.

As a man who had 'cut his forestry teeth' at divisional level, it is reasonable to assume that Harris already had a very long list of things that he knew Head Office did poorly, and how that interfered with the men doing the job in the field. From this point on, tower construction would be far fewer 'edicts' from Head Office and more input from the men who would have to build and deal with the finished product. That marks a decided shift in the tower story of Western Australia.

On the downside - for tower researchers, it also signifies that there were fewer letters from Head Office about towers floating around and therefore fewer pieces of information likely to navigate the system and one day end up at the State Archives.

### **A spot of negotiation**

Before we resume our chronological run of the towers of Western Australia, it is worthwhile mentioning the work that Harris did which shaped the course of that historical arc. Remembering Roger Underwood's description of Harris as a "clever and ruthless negotiator", the reader is asked here to briefly return to the map of Forests Department acquisitions that is reproduced back in the first chapter. It will be seen that between the years 1954-9 large swathes of land in the far south, towards the south-west corner of the state, north of Perth, and the Julimar area at the far end of the Darling Scarp (and which was on the northern side of the Avon River) were all added to the forest estate. In no small part this was down to Bluey Harris and his 'clever and ruthless negotiation' at the Land Utilisation Committee (a statutory body set up to make decisions on the purposing of unallocated Crown lands). From these acquisitions would come further need for towers in coming years. As Don Stewart succinctly put it in his "Forest Administration in Western Australia, 1929-69": *"It had been a most fruitful period for forestry"*. David Brand's Liberal Party would oust Labor and return to power in 1959, and the Land Utilisation Committee would - essentially for political reasons - be discontinued, which effectively marked the end of any further acquisitions or expansions that the guile and skill of Harris could pull off. Nevertheless, places which would never have entered the minds of Kessell or Stoate, would within a few short years become the subjects of planning and building of fire lookouts.

### **Mt Frankland and Granite Peak**

The acquisitions of additional lands in the Great Southern region of WA into the Forests Department orbit which are mentioned above provided the impetus for two further lookouts further to the east to kick-off tower construction during the Harris years. Granite Peak and Mt Frankland would both have cabins placed directly onto the granite surfaces during the years 1954-55, although Granite Peak would first be recorded as being manned only during the 1957/8 fire season.

Although simple structures, they followed very different career paths. Mt Frankland would be manned every year thereafter for as long as manning records were kept (1967 was the last year), but Granite Peak was only manned in 1957/8 (31 Dec - 15 Apr) and 1958/9 (8 Jan - 10 Apr), after which time it appeared on the manning data list each year as "Not manned" - so effectively it can be considered to only have had a very brief operational life. No photos are known to exist of the Granite Peak structure, but the Mt Frankland structure is unusual by Forests Department standards in that it has a fully-bricked section below the actual observation cabin that the observer climbs up through in lieu of something more conventional like leg supports.

### **Rebirth - with a twist**

On this journey through the timeline of Western Australian fire towers the reader has been taken to new locations each time to witness new and marvellous creations being erected. We now have a change of pace, and go to somewhere we've sort-of been to before. 1958 would mark the first 'rebuild' - strangely only in name, or sort-of; but not in location.

The reader will remember the third tower to be built, Collie-Lucknow. Over time, the 'Lucknow' part seems to have dropped out of fashion, and it was referred to in correspondence as just 'Collie'. Still later (the late 30s is the earliest example of this in official documentation), that seems to have morphed into 'Mungalup' because of its proximity to that locale from the old timber hewing days.

In September 1957 the following was sent from the Fire Control Superintendent:

*I have discussed this matter with Mr. Moore who has recently made an inspection of the old Mungalup (i.e. Collie-Lucknow) tower, and is submitting a report thereon.*

*It would appear that a new tower will be needed within the next year or two at the latest, so I suggest we go ahead immediately with a new tower on the site south-east of the present tower.*

*I consider a 100ft tower be built to obviate excessive clearing on the ridge. Do you concur please?*

So, after three and half decades, an 80ft veteran would be ending its days, a 110ft tower (it had been a decade since the first of this new size type had been built at Kelson) would be chosen and erected to replace it nearby, and confusion would become entrenched for evermore as to just how many 'Mungalups' were ever built. While acknowledging Collie-Lucknow's unofficial change of name, for the purposes of differentiating the site north of the Mungalup road from the soon-to-be-utilised site south of the same road, it has been decided by the author that 'Mungalup Tower' only came into existence in 1958. Although, a contrarian will obviously tell me that I'm wrong. But it's my book, so I can choose the rules.

Mungalup is worth talking about in a degree of detail as it has several features associated with it that warrant discussion. A photo, taken very much later than the 1950s, is shown on the following page:



The first thing to draw to the reader's attention is the extended size of both the cabin bearers (pointing towards the top of the photograph from this angle) and the cabin joists (pointing towards the sides of the photograph). Bearers and joists are normally sized quite closely to the dimensions of the cabin, with only small stubs extending outwards. These are quite substantial, and could possibly have been made this large to hold a narrow walkway around the outside of the cabin - although no such idea has ever been seen by the author on any Forests Department plan. Such oversized cabin supports have never been spotted on any other Forests Department tower, and no correspondence has ever been found explaining them.

Although jumping way ahead in the tower timeline here, this photo also shows a much later addition added to some other towers as well over the ensuing years - a near-vertical ladder going up the *side* of the structure. Originally built with a standard arrangement of internal wooden ladders and landings, the reader can see here from the angle of the photo that all of that (and the supporting joists those walkways sat on) has been removed from this tower and replaced with this alternative means of getting to the cabin. An official reason has never been found for this change, but an idea is that it was done as a way to lighten the weight the structure was carrying as it aged.

However, the reader can also see that this idea of changing the ladder orientation (on the outside of the legs as opposed to being inside) changes the point where the towerman enters the cabin. With 'internal' ladders the towerman will enter the cabin at virtually the centre of the floor area - underneath the plan table. A ladder design such as this requires a new manhole to be built which is offset from the centreline (the light-coloured trapdoor can be seen in the photograph at the head of the ladder - well off centre from the middle of the cabin floor).

The final point of interest with the 1958 Mungilup Tower 'rebuild' comes down to a very fortunate circumstance - when replaced (in the 2010s), the cabin of this 1958 tower was kept and currently resides in the DBCA yard at Collie. The author had a chance to examine it in 2020. Two photos, of the trapdoor area and timber arrangement underneath the cabin, and an 'inside view' including an old and very dusty plan table, are shown below:



This close-up examination was able to resolve a mystery not solvable from any surviving historical material located to date. It was known that at some point 110ft towers went from using the 'old' method of setting the cabin bearers down from the very tops of the legs to create the plan table from the remaining length of leg above that, to one where the bearers sat flush with the leg tops (and with the cabin joists then placed perpendicularly on top of those), but not when this changeover occurred. The only surviving 110ft plans only show the original design, not the later modification. This cabin shows the 'new' design - which indicates that assuming all future towers followed the same principle, then only Kelson has the 'integrated plan table' design. Any close-up footage of the bearer area of other towers is unheard of, so it is speculation based on very limited evidence. The table has a metallic frame bolted to the floor, so is *probably* an indication of the method for plan tables being used from this point onwards. Interestingly, the walls of the cabin show no indication that there ever was an opening or a door which could have given access outside the cabin - only further deepening the mystery of why the bearers and joists were extended to give the impression of there being a possible walkway envisaged for around the cabin. The cabin was measured at this time, and was found to be (outside measurement) 285cm (9' 3") square.

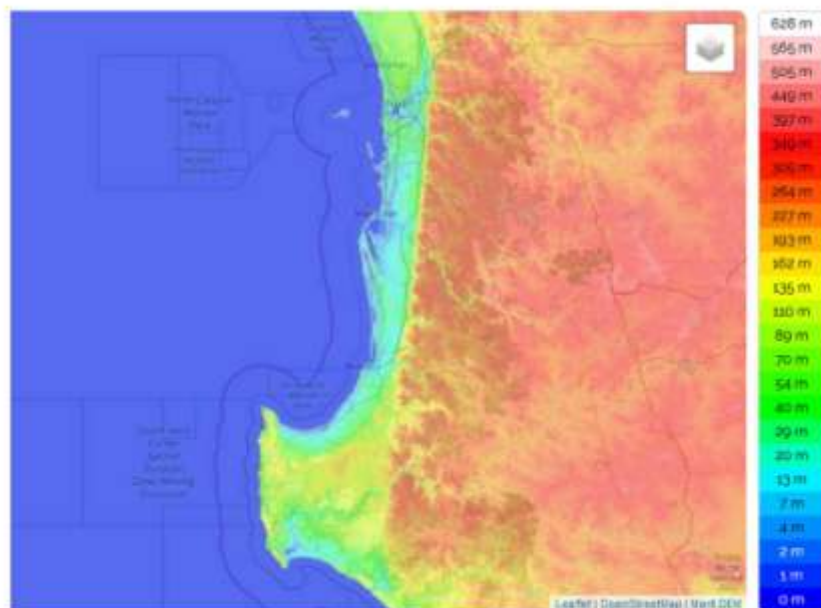
The height from cabin floor to windows was ~135cm, and the window height was ~55cm. Any further historical information on this most unusual of builds would be welcomed by the author.

## An old tower size is reborn

Despite 80ft having been used in the third ever tower built by the Forests Department, it apparently wasn't a size that appealed. That changed also about the same time as the Mungilup rebuild when an 80ft tower was commissioned for Mt Seaview. A new plan was drawn (dated 28/2/58 - F.D. Plan No. 1014) for a seven-section 80ft tower design which, interestingly, still had the cabin bearers four feet below the tops of the legs to create the plan table from the remaining pieces of leg which would be above the floorboards. No evidence (written or photographic) exists which can confirm if this was the final arrangement, or if (like Mungilup) a decision was taken to move the bearers to the top of the legs and install a separate free-standing table.

The location is about 10 miles south-east of the location of Ludlow Tree, and it is unclear whether it was to be a replacement or an addition for any coverage Ludlow was still performing. Pine planting was beginning at nearby Happy Valley at this time, and thoughts were already turning to how the wider area (the so-called 'Donnybrook Sunklands') could be utilised for even greater pine output.

This is a good point to introduce to the reader a facet of the topography of south-western Australia.



The sharp change-of-altitude line marking the almost straight-line western edge of the Darling Scarp is quite apparent in the above colour-enhanced image. Mt Seaview (indeed the whole 'Donnybrook Sunklands') is within that yellow-green area to the south-west of the escarpment line - higher than the coastal plain, but lower than the escarpment proper. In some respects it may be considered as a sort-of 'intermediate' or 'mezzanine level' between the two.

First manned on the 29<sup>th</sup> of December 1958, Mt Seaview is shown as having been fully utilised every summer thereafter for as long as these records were kept. So, it was a worthwhile addition to the Forests Department fleet. It was only recently vandalised and destroyed.

## Off to the pines...

Also around about this time three lookouts appeared in various pine plantation areas. 'Also around about' is an unfortunate term to use in a book meant to be about conveying fact, but that is due to one of the three (Pinjar) having its erection year yet to be definitively pinned down. We know the Pinjar blocks started being planted from 1955 onwards, and the Pinjar lookout is marked with a lookout symbol on a 1963 Forests Department map, but just when it was established between those two bookend years is unknown. Fortunately, the other two pine area towers from this time (Como and Gngagara) had their founding recorded in documentation which still survives today.

Como was built in late 1957, and shown on the manning list that year as "New tower used for checking bearings as required" with no dates supplied. The following year that was further truncated to just "Manned as required", and for years thereafter its name appeared on the list without any dates or comment until 1967 (the last year these records were kept) when the comment was "Manned during weekends and on weekdays of severe and dangerous summer (sic)". There is enough evidence here to consider Como - despite it gaining a place on the manning list - as being nothing more than a 'subsidiary lookout' that was used when a fire was detected via another means and a bearing was required. It was at the Collier Plantation headquarters, and looked like this:



The reader will notice both the unusual positioning (straddling an undercover garage) and the fact that sections *do not* have the standard cross-beam bracing, but only a single diagonal beam per side per section. In many respects, it does not look like a standard build that would happen elsewhere in the state.

The second 'pine' tower during this period was Gngagara - although when it was constructed it then went by the name of St Patrick's Hill. This leads to a slight re-hash of something first drawn to the reader's attention earlier when discussing Mungalup and the subject of tower name flexibility.



For many years before 'St Patrick's Hill' first arrived on the listing of manning dates, another tower called 'Gnangara' used to appear. This 'Gnangara' was in fact the old Wetherall (alternative spelling 'Wetherell'), which has so far evaded our history to date. Wetherall was a lookout we know was constructed at Gnangara Plantation. In the 1934/5 Detailed Annual Report held at the DBCA Library, reference is made to a sum of £11 spent "Clearing site and erecting lookout site". What was built remains unclear, and no photo is known to exist of the "lookout" which was erected south-west of the Gnangara settlement on Wetherall Hill. Undoubtedly it was not of any grand proportions. However, it was long-lasting, as it was the 'Gnangara' being reported on in manning data in the 1950s before the replacement was built. The name 'Wetherall' had apparently fallen out of favour, and a new lookout name which could be best translated as 'the lookout which services the Gnangara Plantation' had now become established. In the reporting year 1958/9 'Gnangara' is listed as "No longer manned", and on the same list 'St Patrick's Hill' begins a full season of lookout duty starting on November 1. This marked the changeover when Wetherall was decommissioned and 'St Patrick's Hill' took over as the lookout for the plantation. In time, 'St Patrick's Hill' became renamed as the new 'Gnangara', and remained so for decades thereafter. In a strange twist of fate, on maps in later years when showing the abandoned site of the first tower, the map-makers reverted to calling Wetherall by its original name rather than the name of 'Gnangara' which it unofficially held until its decommissioning. The 'new' Gnangara looked like this (a 1983 photo, but little external change of appearance is thought to have happened - perhaps apart from having a more modern cabin fitted - between its original erection and this time):



The reader is once again drawn to the fact that this tower (like Como), based on what has been discussed to date, *does not* seem like the robust, well-engineered structure one would usually expect to see from the Forests Department.

The final lookout of the three from this time period (Pinjar) does not have any surviving contemporary references to it, or photographs of it, to allow much to be said here. The name would be appropriated decades later for a new lookout relatively close by to the original site (that was originally called 'Shireview'), but that is a story for a later time. From the only extant reference to it,

on a spreadsheet of lookouts compiled long after its construction, its height is given as having been “9 metres”, but there is no way of knowing how accurate that figure is. It never appeared on listings of manning data, so it may reasonably be assumed to have been very much in the mould of Como - there, but only used when called upon after an outside notification of smoke.

It is also worthwhile mentioning at this point that this was a lookout whose existence was once again down to Bluey Harris’ work elsewhere expanding the forest estate. Pinjar, and lands further north up to the Moore River region, became State Forest 65 during his tenure. This would be the first lookout constructed in this area.

### Afforestation and Reforestation

It is a good point in the narrative to pause and talk a bit about pines more broadly, and about how they fit into the larger story of the Western Australian tower narrative. The chart below is reproduced from the 1955 Forests Department Annual Report. It gives the areas where pines had been planted to date, an age profile of just what was at each of these sites, and is further subdivided into the two main types planted; *Pinus radiata* and *Pinus pinaster*.

*Plantation Age Classes in Acres in 5-year Groups as at June, 1955.*

Age Group. Plantation.	Over 30 years.		25-30 years.		20-25 years.		15-20 years.		10-15 years.		5-10 years.		0-5 years.		Net Area.		Total Net Area.
	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	<i>Pinus radiata</i> .	<i>Pinus pinaster</i> .	
Ludlow—																	
Coollup .....	10	571	8	42	1	47	5	10	5	77	46	184	29	977			
Stirling .....	17	17	2	173	80	452	28	128	2	4			112	774			
Experimental .....													12	124			
Willcock—																	
Abba .....												3	261	3	261	264	
Tutunap .....												71	326	71	326	397	
Keenan					363	156	246	82	7	4	2		71	72	689	317	
Greystones .....	58	14	218	72	1	130	25	5	6	21	14	2	8	13	40	335	
Helena .....			260	37		174	40	15							300	226	
Mudros .....	17		68	4	2	54	25	45							112	103	
Darkan .....			78	30	29	130									107	100	
Beraking .....			131	80	1	59	38	14	31	21					191	174	
Portagabra							26	82	2	59					46	28	
Proprietary		98		168		16		16		24						322	
Mungahup		44	3	8		12			5	4					57	19	
Grimwade					244	112	308	13	97	20	70	5	288	18	1,016	168	
Geneagle											1	52	10	376	11	428	
Somerville				367		494		540		181		214		37		1,833	
Gnangara				312		833		423		336		630		4,258		6,792	
Collier .....				209		536		132								877	
Scaddan						210										210	
Myalup			2	379	8	329	2	71			44	27	363	39	1,186	1,225	
McLarty												3	94	3	94	97	
Harvey Weir			123	26	41	24	36	6	57						257	56	
Hamel	2	42		2	7	1		8							9	53	
Pimetia			21	31	244	11	2	2							267	44	
<b>Total</b> .....	<b>131</b>	<b>745</b>	<b>919</b>	<b>1,944</b>	<b>1,021</b>	<b>3,768</b>	<b>771</b>	<b>1,593</b>	<b>212</b>	<b>751</b>	<b>96</b>	<b>996</b>	<b>486</b>	<b>6,075</b>	<b>3,648</b>	<b>15,996</b>	<b>*19,644</b>

The first point the author would like to convey is that one site, Gnangara, makes up over one-third of the total area. The second point is that together with Gnangara (which may be classed as being on the far fringes of the metropolitan area), the other metropolitan plantations of Somerville, Collier and Scaddan made up just shy of one-half of the area planted with pine by the Forests Department.

From inception, the Western Australian Forests Department ran a form of 'twin stream' operation which led to a format in the annual reports where "Afforestation" (*the act or processing of establishing a forest especially on land not previously forested* - Merriam Webster Dictionary definition) and "Reforestation" (*the action of renewing forest cover [as by natural seeding or by the artificial planting of seeds or young trees]* - the same dictionary source) were both covered separately. In broad terms that may be thought of as planting pines on previously cleared lands (abandoned or sold farmlands, or previous areas of indigenous forest badly destroyed by any unregulated logging which occurred before the inception of the Forests Department) or areas with non-forest flora such as may have been available closer to the coast, versus the rehabilitation of the already-logged indigenous forests so as to ensure their future health, viability and utility.

Afforestation was, in some senses, as important as reforestation, as the indigenous forests supplied the hardwood component of the timber industry, but Western Australia is very deficient in softwood species - the only option for timber of this type was to import it at great cost into a state which at that time was still some way off economic stability and strength. The Afforestation side of the Forests Department's charter was to create the softwoods that would fill this void.

In practice, this meant (as can be seen from reading some of the names on the above table and knowing a bit about Western Australian geography) that most of the divisions would have *both* indigenous and introduced species within their areas - with the indigenous component (jarrah, karri, marri, wandoo etc) being by far the larger share of the two. However, if the 'pine people' had a 'home' where a fair chunk of their resources went, that would be those parts of the greater metropolitan area where plantations had been established, plus also the beckoning areas stretching to the north of Perth which had started life at Gnangara and were steadily expanding outwards.

What does this mean for towers? Well, in the ongoing march of towers southwards from Mundaring along the Darling Scarp, not a lot. The towers were located in such a way as to form an observation grid which covered everything - indigenous forest and any non-indigenous plantings inserted into them. What guided tower location had more to do with getting a satisfactory view over as much area as was possible given the generally tall tree cover and the topography they were sited within.

With plantations, the story is different. Plantations are arranged in regular blocks, with easy (comparatively speaking, compared to indigenous forests) access to all parts along firebreaks and demarcation tracks. They also, in many cases, are bordered by large areas of cleared land (for farming or residential use) which enables any fires to be first spotted from 'outside' far more often than is the case for the main belt of indigenous forest with its large area. Also, over time a plantation can 'grow' as more and more of the available area assigned to it is planted out - an indigenous forest is by definition 'fixed'.

In his research the author has noted an odd fact - while the towers which were built the length and breadth of the Darling Scarp in jarrah, karri and marri territory were in most cases made to standard plans which still survive in archives today, plans of towers made primarily for pine areas either were (a) never made at all, or (b) are no longer extant. This speaks in some small way to there being an almost subconscious divide between 'pine people' and the '(indigenous) forest people' in terms of fire protection thinking. The 'pine people' do not seem to have used existing plans of Forests Department structures when deciding on their tower needs.

## **Folly by name**

The Mt Folly tower at Nannup is really a case of 'blink and you'll miss it'. It first appears on manning data for the 1958/9 fire season with no dates, but described as having been manned "On high hazards only". Over the next two years it was manned (23 Dec - 2 Apr in 1959/60, and 17 Dec - 27 Mar in 1960/1) before being marked as "Dismantled and removed" in 1961/2. This was very much a 'niche' or 'temporary' tower, built for a specific set of circumstances. The tower servicing the general Nannup area was Carlotta, but it was about 5½ miles from town in the indigenous forest area to the east-south-east. Nannup Division also had extensive pine plantings closer to town to the east. Clearly, the Forests Department people at Nannup felt better coverage could be gained by placing this small tower on the northern side of the Folly Plantation as an additional resource. The author is extremely grateful to Charles Gilbert of Nannup who, in lieu of any known photographs of the Mt Folly tower, has provided this description:

*The Mt Folly tower was a temporary tower pending the completion of Milward. It was necessary to give visual along the Blackwood Valley (to the north east). As an aside, Mt Folly was generally recognised as the southernmost significant hill on the Darling Scarp, and the tower was just over the eastern top of the hill. It was only one ladder high with a single platform but with sightlines over about 240 degrees of arc. To the west it was absolutely clear and you could distinguish the Boranup sandpatch near Karridale.*

Milward Tower will come shortly, but Mt Folly is an important example of the type of change that the Forests Department was now undergoing since the days of Kim Kessell. A local need was seen for a structure which could aid the broad-ranging system of towers then in use, and so it was put in. Being a pine plantation area, the forested area it would oversee was considered 'high value', as to lose pines after many years (and many pounds) of input financially hurt more than any fire damage to a comparable amount of indigenous forest. Nannup Division was one of these areas spoken about previously which had both types of 'forestation' - afforestation and reforestation both taking place.

## **A reminder of how far we've come**

The reader, having already traversed the days of Kessell and Stoate earlier will, hopefully, see that to date during the Harris years that Head Office correspondence seems conspicuously lacking in this telling of the Western Australian fire tower story of this period. From grand plans and broad-scope activities of only a few decades ago, the narrative is now more of the type of local areas taking charge of their particular fire detection needs. Permanent, constantly manned towers still exist, but more specific localised towers are now entering the picture too. In some sense, this new thinking flies in the face of any idea of an overarching network of towers centrally choreographed and controlled giving complete coverage. In another sense, it adds to the richness of the Forests Department tower story and makes it very difficult to categorise it under a single, simple narrative as perhaps many people may prefer. The author likes it that way - it's why he decided to write the book.

## Germination

The reader will recall a brief dalliance with the idea of a pole tower back in the early 40s. Its time had now come. The young 30 year-old Harold Wickett who Bill Stoate had been communicating with back in 1941 was now Mr. H.C. Wickett, Utilisation Officer for the Western Australian Forests Department, a quite senior position within the organisation. Perhaps Stoate's letters gave him the impetus to move westwards once wartime hostilities ceased - we'll never know I suppose.

The original tower in the Forests Department fleet, Mt Gunjin, was fast approaching 40 years of service in 1958/9, and it now became the latest structure to undergo a rebuild. Unfortunately, there is no surviving correspondence to explain how Harold Wickett managed to win over his most-likely highly sceptical compatriots to try the design, but win them over he did. A photograph of a recently-completed Gunjin appears below:



It was mentioned in the 1958/9 Annual Report not in the usual Fire Protection section where tower builds would usually appear, but in the Timber Utilization section - perhaps underscoring the special nature of the build as a Head Office-led experimental project:

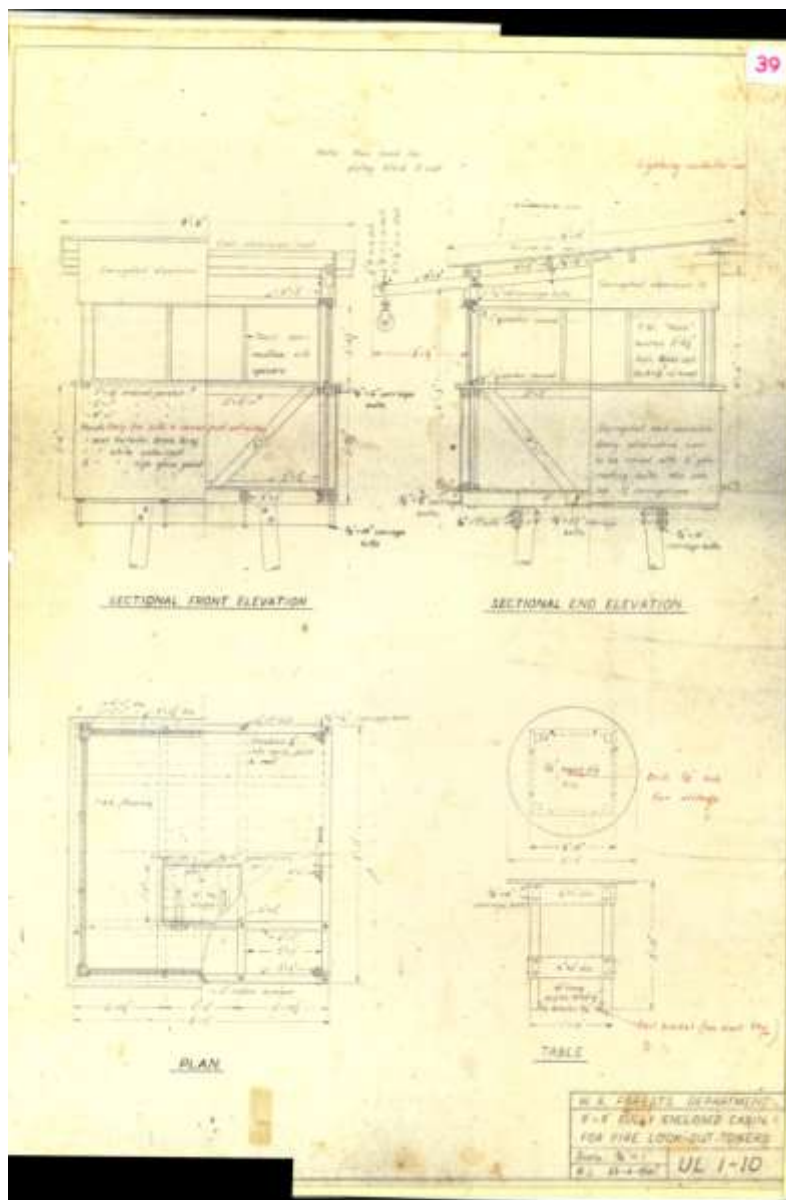
*A 60ft guyed pole fire tower lookout was designed and is in the course of erection. This is the first tower of its type to be built in Western Australia.*

As it would turn out, it would be the *only* tower of its type to be built in Western Australia. Guyed towers with the supporting base having an area less than the cabin area would make an appearance ten years later, but they would be built on a steel framework, not a single wooden pole.

As a design, it throws up a number of interesting challenges and questions. A vertical ladder was something Forests Department structures always attempted to avoid, preferring inclined ladders and intermediate landings. It is doubtful that many of the 'old timers' would have liked such a radical change.

Despite being guyed, the structure is not particularly resistant to either sway or gyration. The author has interviewed a former forestry worker who was invited into the Gunjin cabin once by his towerman mate for a look around, and he commented as to the unsettling sensation created by any movement around the cabin being able to induce an oscillating, gyrating motion.

By far the biggest issue would be the size of cabin to place on top of such a narrow support. Clearly, a large cabin size would place any inhabitant far from the tower's centreline should they venture to the window area. A plan of this tower has never been located by the author, but strangely a plan designated "UL 1 - 10" (as opposed to the usual Forests Department scheme of labelling plans "F.D. Plan No. \*\*\*" - and which suggests the "UL" here is indicative of the Utilisation Branch) *does* appear for an 8ft x 8ft cabin, but this is only dated June 1961. It is reproduced below:



A close look at the Gunjin photo and this plan shows they are very nearly identical, and suggests that although this type of smaller cabin was born out of necessity for the Gunjin project, it seems to have gained acceptance for use on other, more conventional, towers from this time forward.

It is an interesting irony to note that towers from the 30s started off with (what would become) too-small cabins, a move was made to slightly larger ones, and now the circle of life was being completed. A case of everything old eventually becomes new again.

As a postscript to this rather unusual departure from standard Forests Department tower practice, the following memo was written in 1989 (in the then CALM - Conservation and Land Management - era) long after the tower had been withdrawn from active service:

*Gunjin tower is in a poor and unsafe condition and we would like to remove it before someone gets hurt. It has some technical historical interest, but is not a structure of beauty or comparable for technique with the Eiffel Tower.*

*Do you see any reason not to remove it?*

## **The Dwellingup Bushfires**

In January 1961 severe bushfires broke out in many parts of the south-west. Fires in the Dwellingup area were responsible for the destruction of two towers - Teesdale and Mt Wells.

### **Aftermath (1)**

Whatever effect the fires of 1961 had on people's motivations, it is true to say that after that event a good deal of activity started happening pretty quickly. First out of the blocks were three 110ft towers which sprang up - two at new sites (Munro and Milward), and one which was a replacement for an aging tree lookout which had reached the end of its days (Alco). All three have stories of interest.

The Munro site was discussed all the way back in 1958, and a handwritten memo from the time included:

*F/O Clifton has put in some 3 weeks work locating a suitable tower site. The need for this tower arose because East Kirup Tower has a direct view of an extremely small proportion of the plantation area (Grimwade Plantation) - existing and proposed. If a fire ever occurs we must be able to rely on immediate detection. In guiding the selection my main consideration has been direct view of areas most likely to give us catastrophic trouble.*

For whatever reason work on this tower was 'sat on' for three years, and it was only erected in 1961. It is shown as having been first manned on the 18<sup>th</sup> of November that year, with the last day being

the 21<sup>st</sup> of March 1962. Strangely, in subsequent years when manning data is available it never appears to have been continuously manned, being only used “on odd days” and when hazard levels were deemed sufficiently great to warrant it. In that respect it is sailing very close to the wind to being considered as not actually a front-line tower - despite its considerable size. It was only about 4 miles ESE from East Kirup Tower which was still in use at that time. It was built with a standard 9’ 3” square cabin with bearers placed at the very top of the legs.

Milward was the second 110-footer and, as mentioned previously, superseded the small temporary tower at Mt Folly. It was on the northern side of the Blackwood River 4¼ miles almost due north of the Folly site. There is an unusual time gap though - Milward only first entered service for the 1962/3 fire season (on the 24<sup>th</sup> of November), and Mt Folly was recorded as “dismantled and removed” during the 1961/2 season, so what arrangements were in place during that changeover period are unknown. Unlike Munro, it appears to have been a very useful site based on manning data - it was fully manned each year thereafter. Some doubt exists about what type of cabin was on it, and a 2017 photo held by the Nannup Historical Society shows that while the structure still stands, the cabin is now missing - so that question must unfortunately remain in the ‘unsolved’ basket.

The final 110-footer in this burst of activity was the Alco replacement in 1962. A pair of photographs from Dave Evans’ book covering the Alco work is shown below, as several points of note appear:



1. The original tree lookout is shown, and it *was not* used as the ‘lead tree’ for the tower construction.
2. The cabin bearers are clearly shown as being affixed right at the very tops of the legs (i.e. there will be no plan table formed from the final few feet of the legs ‘poking through’ the floor when it is built - a separate non-integral table will be added inside the cabin later).
3. The right-hand photo shows, at least for this build, that the men erecting it preferred to stitch the two halves together from the top down. The uppermost walings are in place, and those which will join the lower sections of the tower have yet to be fitted.



A 2019 drone photograph of Alco is also shown below:



The cabin is *definitely* an 8ft x 8ft design made from corrugated iron. If Milward's cabin was indeed one of the larger, older styles, then this Alco cabin can then be said to be the first example of the smaller cabin size brought about by the Gunjin experiment now being used on larger towers. The reader should note how the impression is created of an aesthetically-unbalanced appearance because of the smallness of the cabin. It can also be seen that the cabin bearers are also outsized compared to the structure that is being supported by them.

## **Aftermath (2)**

At the same time a flurry of 110ft towers were popping up, a similar number of 40ft ones were also joining the fleet - although all would be replacements at existing sites.

The first of these was the new tower to go in at Mt Wells to replace the one lost in the fires. Amazingly, no photographs have ever been found of the Mt Wells tower since those taken just after its erection in 1927, so without any written references to it in the archives since it is assumed that it was the original one without alteration which was destroyed by fire. One suspects that if it hadn't burnt down it was probably due for replacement soon anyway.

A photo of the new, 3-section 40ft tower with a 9' 3" square cabin is shown below (photo taken 1983).



The second 40-footer from this time was the long-discussed replacement for Mt Solus. As with Mt Wells, photographs of Solus anytime from original erection until the 1960s have never been found. A memo from Fire Control Superintendent Milesi to Mr. Wallace in 1962 speaks of the situation:

*If you remember, we discussed this tower at the end of the 1954/55 season and decided it would need replacing in the very near future (Author's note: This is now SEVEN YEARS later).*

*An inspection on 20<sup>th</sup> inst. showed considerable deterioration and I recommend that action be taken to have a new tower erected for next fire season; it would need to go on next estimates.*

*In 1946 the ends of the legs were cut off and the tower mounted on concrete blocks and since then the ladder and one side have been shored up for safety.*

*At some of the joints where 4 or 5 bolts go through the very light pole legs there can be very little but rust holding the pieces together.*

*Will you please give this consideration for next season.*

The mention of being placed on concrete blocks in the 40s is surprising to hear. The reader will recall from the Stoaite years that this concept was being spoken about, and yet Mt Solus was never mentioned in that regard. The reader may recall that Mr. Wallace was the man heavily involved in that whole 'retrofitting' episode, so one cannot help but get the feeling that Mr. Milesi might not have realised that the man he was writing to here may not have needed the explanations.

Although the height of the finished product was 40ft, it seems from correspondence that a few other sizes were being bandied-about at the time. Mr. Wickett and his Utilisation Section were also floating around with this project - at one stage he was actively proposing a steel tower instead. Steel towers still had a few more years to wait. A photo of the replacement Mt Solus appears below:



The third 40-footer that surfaced during this period was also a replacement - although this was born from necessity. In July 1962, the Manager of the State Government Insurance Office in Perth received this brief letter from the Forests Department:

*I wish to advise the Dale Tower and Hut were struck by lightning around the 15<sup>th</sup> July 1962.*

*When I receive full particulars of the repair damage I shall forward a claim.*

When Gunjin was replaced with the pole tower in 1959 the original tower was still standing, so there is nothing to suggest otherwise that what was destroyed on Mt Dale (on a slightly indeterminate date) was anything other than the original 1921 tower that was still standing. It also would, by that stage, be at the fag-end of its lifespan, so it was in some ways a fortuitous occurrence - the Forests Department gained a new, shiny tower and the insurance agency would help foot the bill.

Unfortunately, no further information has been found either at the State Archives or in old annual reports which can corroborate that this was indeed when the new Mt Dale was born, but there is no 'gap' or obvious date discrepancies in the yearly manning data to suggest Dale was ever off-line during fire seasons of the time, so the assumption is that a new tower was erected between the time of the lightning strike sometime in July and date of first manning that year (24<sup>th</sup> of October).

A curiosity with the Dale tower is that in later years it was photographed having (a) an external ladder, (b) a walkway around the cabin, and (c) lockable shutters placed on the windows. Mt Dale is a popular weekend tourist drive for many Perth people, and it is assumed that this non-standard work was undertaken as an enhancement for visitors who may have wished to climb it and admire the view. It is not known if this was done at the time of erection, or only later. It is a fundamentally identical structure to both the Wells and Solus towers built during this time, but the additions superficially change its appearance to something which looks non-standard:



#### **Four become three**

Before Mr. Wickett's arrival on the scene, a betting man could normally not lose his wager when laying down money that the next tower to be built would have four legs. That 'sure thing' wasn't so sure anymore once Mr. Wickett waltzed-in to the room with some fresh plans tucked under his arm.

In the 1963/4 Annual Report of the Forests Department (again, in the Timber Utilization section of the document) appears the following:

*A three-legged fire lookout tower, 70 feet high, was designed and has been erected at Wanneroo at three-quarters the cost of the usual four-legged construction.*

This reference to relative cost is the only justification the author has located in archival material for attempting this project with such a radical design. It is hard to overstate just how challenging a task such a build would be - everything from trying to place a square cabin securely on top of a triangular pyramid structure, to trying to have that cabin level with the horizon when it's being supported by only three legs, to how you can design a ladderway inside a triangular cross-sectional area. However, they managed to find a way to join a cube to a pyramid, managed to work out how to make it level, and cheated somewhat with the third challenge by running a ladder up the side of one of the legs. The finished product looked like this:

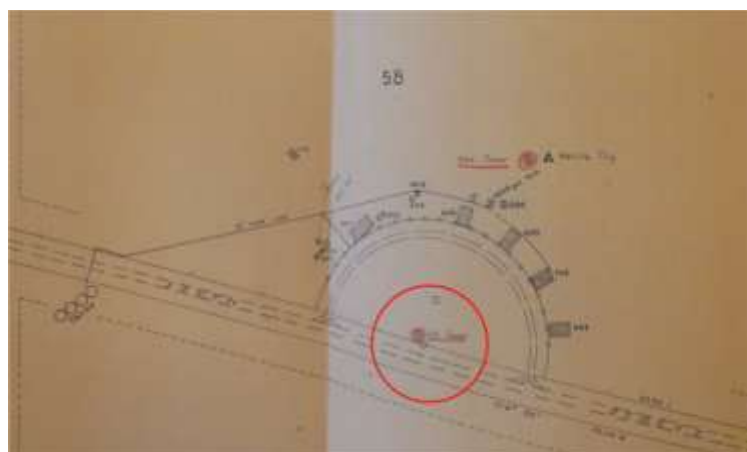


This tower, located as it was only a short distance east of Wanneroo Road would have no doubt been a very useful addition to the ever-expanding Gnangara/Pinjar plantations as it could cover the areas east out to Gnangara, and northwards encompassing the newer plantings.

Regrettably, the tower's erection coincides with a three year gap in the surviving manning records, so it is not conclusively possible to state how valuable it was, but enough data remains to suggest it was actually a well-used addition to the fragmented coverage of the northern plantations and was definitely a good investment. Why it had to be triangular is a harder question to answer.

Fresh from this apparent triumph at Wanneroo, a second triangular tower was built (again in a plantation area - Somerville) in 1965. Under normal circumstances this wouldn't have happened.

Somerville was (since circa 1950) receiving detection coverage from a tree lookout located just north of South Street. In fact, plans from the day show that this tree was *virtually* right on South Street:



South Street has today become a major east-west thoroughfare into Fremantle, and the inevitable road widening that occurred in the mid 60s would spell the demise of the tree lookout, and a replacement further northwards would be needed. The Triffids would get the chance to expand their domain, but this didn't go quite as well as expected. On the 16<sup>th</sup> of February 1971 Mr. Wickett found himself penning this memorandum which may help the reader appreciate some of the tensions created by the three-legged project. The author can't help but notice that if this had been written during the time of (the then recently retired) Bluey Harris, a more explosive outcome may have resulted - it's clearly good timing to air this sort of thing after the hard-nosed boss has left the office.

*I have today inspected this tower and I have attached Mr. Loorits' report and the sketch from which the tower was built.*

*I agree with the comments made by Mr. Loorits. This tower is a shoddy job in respect to choice of materials, quality of workmanship and lack of normal maintenance as laid down in the Forester's Manual. Even the bolts which are readily accessible from the ladder are loose.*

*Adequate washers should be set on both sides of all pipe spacers and all bolts should be properly tightened. This will take some of the looseness out of the structure but a three legged tower can never be as stiff or resistant to rotation as a corresponding four legged tower. The undersize of the legs here is no help either.*

*The members themselves are in good condition and the tower is not unsafe but the shoddiness of the detail of workmanship has reduced the reserve strength and when deterioration does set in this tower will have to go out of commission long before it otherwise would.*

*This tower was commissioned by Mr. Milesi and supervised by Messrs O'Grady and Bukelis. The drawing prepared for Wanneroo was used. My section is not called upon to supervise tower erection.*

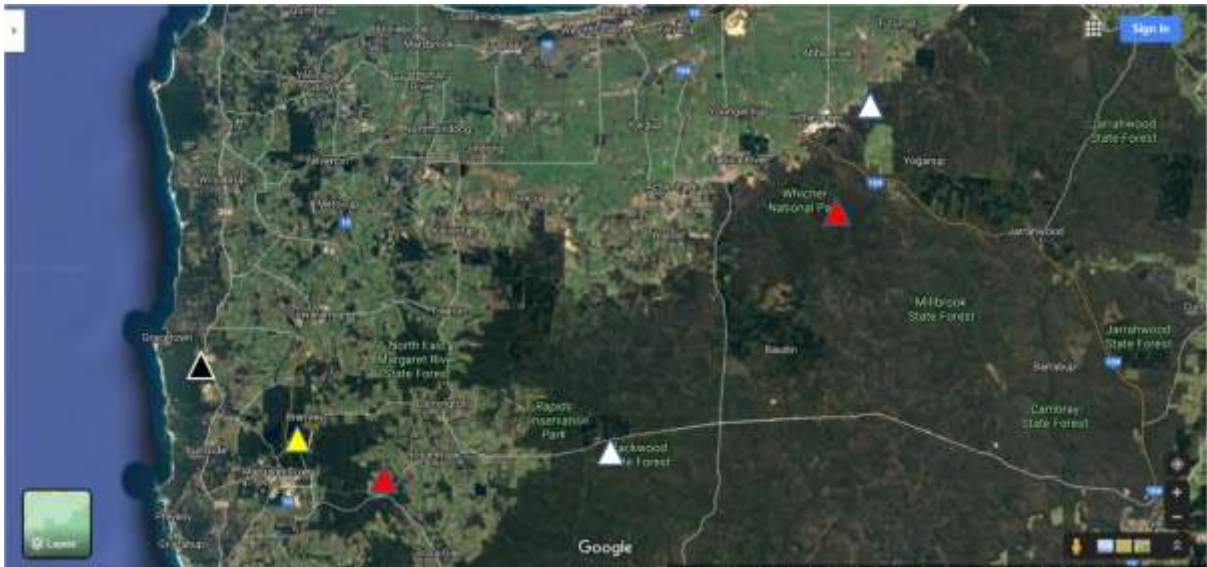
It will not surprise the reader to learn that only two 70ft triangular towers were ever built. Yet again, the 'pine people' seem to end up with the unusual designs.

### **Mowen, and the ongoing Donnybrook Sunklands conundrum**

As anyone with experience of floor or wall tiling would know, large parts of the job can be done quickly, easily and neatly. The trouble always comes when you get to doing the last 'fiddly bits' with the odd angles. Mowen Tower sits very much in the centre of a Forests Department 'fiddly bit'.

The tower was not in any way unusual - a standard 110ft structure (the sixth and final to be erected) with the smaller 8ft x 8ft cabin; it was where it was put that made it the subject for discussion long after it was erected in 1965.

A map of the area with coloured symbols is shown below. Mowen is the lower of the two white triangles south of Busselton and east of Margaret River.



In theory it is well-sited. It is close to the intersection of the two major roads (Sues Road and Mowen Road) which pass through the area, and it is within sight of Mt Seaview (the upper white triangle).

It is however a considerable distance away from the high-value Keenan Plantation at Margaret River (the yellow triangle), the karri forest area at Boranup (not shown, but roughly south of the yellow triangle, but off the map), and it is equally as far removed from towers on the escarpment proper at Nannup (in the very bottom of the right-hand corner behind the map controls).

From a Forests Department memo to the Drafting Branch dated 22/7/1965 mention is made of there being a lookout at Keenan which needs to be included on the plans being drafted for Mowen with a protractor circle positioned at the location:

*Margaret River Keenan Lookout tower – Vasse 80 GE/9. (These are map co-ordinates)*

*(Position of this tower is 11 chains east, and 3 chains north from north, east corner of Margaret River townsite)*

The only problem is, this is the *only* reference to a lookout in Margaret River the author has ever found. Representations to the Margaret River Historical Society also drew a blank, and it remains a real mystery as to how Mowen could possibly provide adequate coverage of the area with this arrangement. This was spoken about openly, as a later (1970) memo from the Busselton D.F.O. makes clear:

*It is noted that no allowance has been made on the 1970-71 estimates for either the building of a new tower or the re-siting of the existing Mowen Tower.*

*Would you please record that the tower coverage afforded Margaret River district generally and particularly the Keenan Pine plantation is inadequate in my opinion.*

As well as the inadequacy of Mowen protecting high-value areas, it was also struggling for relevance more generally (a section from another report on Mowen):

*As the jarrah forest within the direct viewing area of Mowen tower is under regular large area controlled burning, the importance of this tower has been reduced almost to a point of redundancy.*

For the reader's interest, the two red triangles on the above map are sites investigated for potential towers in the early 70s, and the black triangle is the location of a tower (Collins) which was erected in 1972 (which is beyond the time period covered by this book).

The problem was not however confined to Mowen alone; the whole area including some of the areas around the Blackwood River valley were creating a level of discomfort as to the proper siting of detection facilities, the more so because a final approval to use the Donnybrook Sunlands for extensive pine planting was still in abeyance and an overall general area plan couldn't be done.

This would drag on for a number of years before eventually being abandoned after concerted environmental opposition. By then, as the reader will soon discover, fire lookout towers would no longer be the sole option for detection duties. This lack of certainty about the area, and what may eventually be the final configuration of forestry assets, very definitely made this a part of the fire lookout system which just seemed never to have generated a satisfactory outcome. A map of the area actively under consideration for pines at the time is shown below (the shaded section). The solid line is the 750mm (30-inch) isohyet.





## Garvin's Garvin

Amongst the many strange tower things to have occurred during the Harris tenure, the oddest was probably Garvin Tower. It started life like this as a handful of rough poles 'roofed' with vegetation:



It had the luxury appointments of a table and a chair. The people in the photograph are members of the Garvin clan, a farming family of the district. They were involved with the project right from the start, and had the privilege of the final version of the lookout (below) being named in their honour.



In this photo, two Garvins (one is inside the cabin) are seen larking about for the benefit of the camera. The original shelter's framework is still standing just to the right of the new tower.

The story is a lovely one, and the author is grateful to Des Garvin for these recollections:

*Garvin tower was started in December 1964 which was the year that I finished high school and I was the first person to man the set up. It started as a post and brush covering. The bush cover was erected in one day by the crew from the Kirup depot, cut from the property belonging to S.A. & E.R. Garvin at the time. That construction was the temporary set-up until the proper tower was erected in about February 1965. The tower building was built by Terry Lang in the Grimwade workshop. It was a jarrah frame with tongue grooved Pinus pinaster boards which I had to paint with linseed oil before winter. The dimensions were 10ft by 10ft by 8ft with a sloping roof with the high side to the west. It was erected with the walls north, east, west & south facing set on the compass. The chart table was 5ft square set in the middle with the sighter in the centre with a protractor in degrees on the chart. From memory the floor was only 10ft from the ground and entry was through a trap door in the floor. The windows were louvers of glass so you could get the cool breezes when they blew on the hot days. The only equipment was a crank phone connected to a single wire earth return system and a wind speed meter with thermometer attached. There was no two-way radio while I worked on the tower. I manned it for half the next season when mum took it over until we left the area in 1969. I am not sure who manned it after that. The hours of manning were from 8:00am till 6:00pm every day with a single wire telephone system with earth as the second conductor. With the day's action, we always got to the tower 15 minutes before 8:00am to get organised ready for the 8:00am forecast and weather readings of wind direction, speed and temperature and sight distance available. Cloud cover was also noted. Each hour those things were recorded in the log book. On days of severe fire danger the towers would be manned from 7:00am to 7:00pm. When I started the pay rate was £27 a week and the season ran from 1st of November to Anzac Day as usually by then the season had broken. Occasionally, if it rained more than 50 points or 13 mm, you were sent home unless there was lightning, and then 19 mm had to fall. When smoke was detected with a sighting device, the bearings were logged in the record book and that was relayed to the office in Nannup and Kirup. Often watched things with the 7x50 binoculars that were part of the equipment. Many books were read and other tasks were done.*

Garvin lookout ('tower' is almost too-grand a term) overlooked Lewana Plantation in the Blackwood River valley. As mentioned in the previous section, this was another of those 'fiddly bits' from that corner of the state that seemed to defy simple, all-encompassing solutions. Ultimately it would survive until 1972, when the long-ensconced 110ft Kelson Tower to the north would be relocated to a farm site only a short distance to the north-west of Garvin to provide more effective coverage of this part of the Blackwood valley.

It is interesting to speculate what crusty Bill Stoate might have thought about the whole Garvin story if he was still the Conservator, rather than the apparent ambivalence coming out of Bluey Harris' office. I suppose the principle of "Is it cheap? Will it work? You won't be coming into my office asking for any more money if it doesn't, will you?" was the guiding Conservator philosophy in this new age. We have certainly come a long way since the orderly, methodical, competent, Head Office-directed days of the Kessell era. If the 60s were the age of sex, drugs and rock-and-roll, then Garvin Tower probably came closest to embodying that spirit of the time from a fire lookout point of view.

## Getting by with a little help from my friends

As we're closing in on the end of Bluey Harris' time as Conservator, it is the point where three unusual 'builds' occurred which took the Forests Department into new territory - cohabitation.

Surviving documentation is scant for all three, but it is known that the television transmitter for a newly-opened Bunbury ABC station, ABSW Channel 5, on Mt Lennard was declared open in May 1965 courtesy of an archived Commonwealth press release, although that document makes no mention of any Post-Master General (P.M.G.) associations with the Forests Department existing at the time - so it is unknown if the cabin placed on it was already there, or only added later after negotiations. Because manning data was not kept from the time it is unclear how often it was used, or even why. A question mark surrounds whether it was chosen for some specific purpose or whether it was a case of "Yes, that's nice. We'll put one there - the site's now available and somebody else has done the work". Yabberup Tower had been in existence for 30 years already and *may* have been coming to the end of its useful life - it was sited about 8½ miles away to the south-east from the new Lennard transmitter, although this is just speculation based on no hard evidence.

Regardless of exactly when a cabin was fitted to the structure (and it is intriguing that the structure was built in a way that allowed a cabin to be installed perfectly at the very top), a much later (1983) general tower inspection report states that it had not been manned "for at least the last six years". This suggests the lifespan of the Lennard project was about ten years. The telecommunications tower still stands today, but without a cabin crowning it.



A similar situation occurred at the Sawyers Tower site where a new telecommunications tower was erected quite close to the original 1930s structure. There is an aerial photograph (tentative year 1965) showing both structures together, and evidence from the shadow cast from the new steel structure suggests that a Forests Department cabin had yet to be installed at this time. Unlike Lennard, the Sawyers 'replacement' cabin was *not* at the very top of the new tower, but was located lower down below the level of the microwave dishes. The author visited the site in 2020, and the cabin is now removed. A photo showing the cabin placement appears below.



The last of these sorts of collaborations happened after Bluey Harris had retired, but has been included here because (a) it keeps all the examples of this type together in one place, and (b) fortunately, some documentation survived, and is in the State Archives to help explain the process.

In May 1972 the following letter was sent from Harvey office:

*The D.F.O. Harvey has included an item in his 1972/73 works programme estimates for a new fire tower to replace the existing tower at Mornington.*

*Local opinion is that this tower and cabin is unsafe and requires replacement.*

*The uprights and braces are badly cracked and showing signs of rot and the bolts are rusted and cannot be tightened.*

*I should be grateful if the Utilisation branch be asked to carry out a survey of the condition of this tower and advise on repair or replacement.*

*This information will be required as soon as possible to enable repairs or replacement to be carried out prior to the 1972/3 summer.*

The Utilisation people did indeed carry out a survey, and found the structure safe (Author's note: They always do, it seems. By my reckoning after examining a lot of archived documentation, a tower needed to have actually fallen down before it would - reluctantly - then be posthumously classed as "unsafe").

However, in July 1974 the State Electricity Commission (SEC) fortuitously joined the party when the following letter was sent under authorisation from their General Manager to the Conservator:

*Re: Proposed Microwave System*

*Dear Sir,*

*Reference is made to the Commission's letter of the 8<sup>th</sup> April last regarding the possibility of combining the existing 30 metre wooden look-out tower at Mornington within a 52 metre steel tower to be used in the microwave system.*

*Will you please advise if this matter is under consideration, and if a decision is likely to be made in the near future.*

*Looking forward to your co-operation in this matter.*

I doubt the Forests Department could believe their luck. A tower reaching the end of its days was about to have a replacement subsidised by the SEC - without even asking. An additional factor was on the horizon - we are coming to the stage when aerial surveillance is about to become 'a thing', and Mornington in all likelihood would have just disappeared as a viable tower site. Now, for the price of a cabin, the Forests Department will get to have a detection presence at the site should it ever be needed in the future. Unsurprisingly, they arranged meetings and got down to the nuts-and-bolts of operating a joint site as shown in this later letter from October 1975:

*I refer to your letter of 29<sup>th</sup> September 1975 and subsequent discussion between Messrs Nelson and Douglas and now wish to confirm that the two people who have been nominated to liaise with the Commission on behalf of the Forests Department are Mr. D. Grace and Mr. I. Scambler, both of whom are already known to you.*

*In reply to your first paragraph, it is advised that because of the expansion of fire detection by aircraft, Mornington lookout will probably be used only on dangerous days or days when visibility from aircraft is poor.*

*As discussed, the other two aspects to be resolved in detail are the question of cabin height, which we like to see between 30 and 40 metres, preferably closer to the lower figure, and the question of responsibility for recovering the existing tower.*

*Mr. Grace will look forward to hearing further from you in regard to a suitable time for a further meeting.*

The chutzpah associated with now also trying to haggle about who is responsible for knocking down and carting away the existing, rotten, Forests Department-owned 1930s wooden tower is truly breathtaking. Regardless, a second Mornington thus came into existence courtesy of these circumstances, and from an unexpected benefactor. Like Sawyers, this would be a cabin inserted approximately mid-height into the new tower structure - and below the microwave dishes, and existed thereafter for a number of years (exact number unknown). The author visited the site in late 2020 - the steel tower is still there, still apparently in use, but any traces of it once housing an observation cabin have vanished.

## The (long-awaited) arrival of steel

Strictly speaking, the first steel towers are the ones spoken about above, but they are 'piggy-back' affairs utilising the work of others. A discussion on the first genuine Forests Department steel towers is where we'll close this chapter, and the Harris era. The reader will remember that 'There, but for the grace of God, go I', steel towers may well have first appeared in the 1920s. It is a testament to the qualities and durability of Western Australian timbers (and, possibly, the inherent belligerence of Western Australians when it comes to embracing ideas which may in any way smell 'foreign' - read 'not proudly home-grown') that it took this long.

Three towers of this initial 'tank stand' type were built - at Wabbling Hill (covering the northernmost parts of the Pinjar plantations), Hampden (also a pine plantation area west of Harvey), and the Julimar area north of the Avon River. The last two are definitely known to be 50ft, and Wabbling is thought to most likely have been 40ft. All three are towers of a type where the supporting frame has a lesser cross-sectional area than that of the cabin, and all required guy ropes to stabilise the structure.

Wabbling has since been replaced with a similar type of tower with an un-guyed, larger cross-sectional frame, Hampden has been dismantled and removed (believed to be circa 1990), but Julimar - as late as 2015 - is still standing abandoned in this dilapidated condition:



A reason why such an unstable means of support was chosen has never been located in surviving archival materials.

Wabling's exact date of build is uncertain, but enough other documentation about the site survives to guess at *about* 1968, and the latter two are referenced in this December 1968 memo suggesting they were erected some time in 1969:

*It is proposed that the two 50' towers allowed on Mundaring estimates will be purchased this year, but that the unit originally destined for Mt Talbot will be transferred to Myalup plantation (Hampden) instead.*

*This will meet overall priorities in fire tower installations more effectively, and the necessary adjustments to divisional estimates will be made in due course.*

*Materials for the Julimar cabin will be requisitioned by Mundaring, and those for the Myalup cabin will be requisitioned by Harvey for delivery to Mundaring where both cabins will be constructed.*

*The Myalup cabin will subsequently be transported in prefabricated sections on completion, and the necessary follow-up arrangements should be made locally.*

All three towers of this type came after manning data ceased to be collected for annual reports, and it is unknown how much use any of them got. It is suspected that of the three, Wabling Hill *may* have been the most-frequently manned, as it was the only one of the three to ever have been replaced with a later structure.

And on that note, we'll come to the end of the cavalcade of towers, and draw a curtain on the story. Almost.

\*\*\*\*\*

## Coda\*

\* *Definition:* [Music] the concluding passage of a piece or movement, usu. forming an addition to the basic structure.

The reader arrives at this point after having been on an epic with almost symphonic characteristics. Four 'movements', four Conservators, a work which modulated, had tempo shifts, moments of tension interplaying with other moments of languidness, heroes and villains each with their own musical motif, and no doubt had the listener enthralled and sometimes wondering just where the music would take them next. The lights have now come back on, and it's time to file out of the auditorium well-satisfied with a fine night's entertainment.

Perhaps a coda, perhaps merely elevator music, this section briefly sets out what comes next - and some reasons why the author has chosen not to go there.

Bluey Harris retired on the 30<sup>th</sup> of June 1969, two of our old friends from the story; Roy Wallace (July 1969 - January 1972) and Don Stewart (January 1972 - July 1972) both then had very brief stints as Conservator before they too moved on to retirement, and Bruce Beggs then ran the Department for ten years before he left to join the staff of then newly-elected Labor Premier Brian Burke. The Forests Department itself disappeared in 1985, subsumed into something called the Department of Conservation and Land Management - CALM was its acronym.

Many of the main actors had left the stage; the focus of the organisation was shifting, and a sense of things just not being the same anymore had taken hold. More than any other reason, the author chooses to halt the narrative here for much the same reasons that some people choose to only watch the first two Terminator movies and then pretend the others didn't happen - a type of way of remembering the story when you thought it was at its best.

There are other less emotive reasons for doing so too.





This (above) is a photograph of the meticulously-bound, packed-with-information, copies of the Detailed Annual Reports of the Forests Department which are held at the DBCA Library. The last bound volume is for the year 1967, and the box file at the very end of the shelf contains everything from then on until 1978, when nothing further was deemed worthy of being printed and preserved. Remember that each of the (mostly) black leather-bound volumes on the shelf are for ONE year only, and there is a lot less air between the pages of one of them than the stuff sitting in the box file.



I will leave it to the reader to decide for themselves what these photographs seem to be implying.

There is of course also the rise of aerial surveillance after this time period we've just left had passed - something which was heavily spruiked with wide-eyed optimism when first unveiled, and then saw an adoption of a way softer tone of triumphalism from its proponents the longer it went on. Whilst interesting, it isn't what this book was about, and so the author merely reproduces below the years of Annual Report statements for the fire seasons which follow so the reader is not left hanging here:

***One aircraft was used for fire spotting, replacing towers in the Pemberton area. This trial showed aircraft are more efficient in detecting small smokes and provide the additional advantages of rapid reconnaissance and reporting of fire behaviour and surrounding fuels. Improved fire spotting from aircraft was instrumental in reducing the number of damaging fires in the Pemberton area. For the 1974/75 summer, increased use will be made of aircraft for fire spotting and four aircraft will be operating between Harvey and Walpole.***

Forests Department Annual Report, 1973/74 (p. 17)

***Considerable changes were made to the forest fire detection system in 1974/75. Four light aircraft replaced 13 towers covering forest areas south of Harvey. Each aircraft was assigned a pre-determined route covering the whole forest but concentrating on high value areas. Flying schedules were based on daily fire danger.***

Forests Department Annual Report, 1974/75 (p. 18)

***Following the success of spotter aircraft in the 1974/75 season, aircraft surveillance was expanded to include most State forest outside the Blackwood Valley and Wanneroo pine plantations. Seven aircraft replaced 23 towers which previously covered this area. Aircraft continued to provide earlier detection of smokes than towers, and rapid reconnaissance information which improved the efficiency of fire attack. Aerial detection trials were carried out over pine plantations in the Blackwood Valley and achieved improved area coverage and earlier location of smoke.***

Forests Department Annual Report, 1975/76 (p. 17)

***The area covered by spotter aircraft was increased last fire season to include valuable pine plantations in the Blackwood Valley. Eight aircraft provided surveillance over State forest between Mundaring and Walpole and this cover included adjacent private property and Crown lands. Lookout towers were retained for the Wanneroo pine plantations and as back-up for aircraft at Harvey and Nannup. The remaining towers were not manned but maintained in a serviceable condition for emergencies.***

Forests Department Annual Report, 1976/77 (p. 18)

***Nine spotter aircraft and four towers provided efficient fire detection over State forest and adjacent land.***

Forests Department Annual Report, 1977/78 (p. 17)

***The first extensive trials comparing spotter aircraft with towers for fire detection were held at Pemberton in 1973-74. The trials revealed that aircraft provided improved quality in detection and were more economic than towers. Use of aircraft was then expanded employing hired aeroplanes, and towers were put in a standby condition for emergency use only. However, the types of aircraft most suited for fire spotting were not available for hiring in Western Australia and Government granted approval for the Department to purchase four Piper Super Cub aircraft. Purchase was completed between October 1978 and February 1979.***

Forests Department Annual Report, 1978/79 (p. 17)

***Five fire towers were manned regularly and 22 others were kept in full readiness for fire emergencies. A new fire tower was constructed in the Blackwood Valley to provide additional coverage for an area of pine plantation that has expanded considerably in recent years.***

Forests Department Annual Report, 1979/80 (p. 15)

***The main fire detection service was provided by surveillance pilots flying light aircraft. Nine aircraft were used, flying a total of 7 378 hours during the fire season. During the year the detection system was improved by :***

***(a) the introduction of four new Piper Super Cubs,***

***(b) the erection of hangars at Dwellingup and Manjimup,***

***(c) the construction of a new runway at Nannup.***

***Five fire towers were manned regularly and 20 others were kept in full readiness.***

Forests Department Annual Report, 1980/81 (p. 14)

This book covers times and events when those people involved in their creation have now left this mortal coil. It was an honour to relate as many of their deeds as the few surviving records would allow me to. There are enough people and secreted records floating around covering the period onwards from this point such that, should they choose (rather than the familiar refrain of "This REALLY needs to be written-down" - and then not bothering to offer-up material which could make that possible - or indeed to even lift a finger in any meaningful way whatsoever by way of assistance), then they can do that themselves. The author has no interest in covering for other people's laziness.

Attempts to factually explore parts of the latter stages of the fire tower story during the years of research that have gone into this book have been met, virtually universally, with either disinterest and/or silly games which require the researcher to work out blind what questions to ask to elicit a meaningful response, rather than the person just voluntarily throwing-open completely whatever source material they may have in their possession and letting the questions naturally suggest themselves from that material. It is a bit like rats in a maze learning to press a button with their nose to be rewarded with a treat - rats seemingly don't mind doing it, but this author does.

Also, an appreciation that anecdote is *not* fact - it may, subject to the vagaries of memory, be a useful corollary to a fact once that fact has been uncovered and made known, is a concept which it normally shouldn't be necessary to state to anyone of adult age, but apparently it is.

The author very much looks forward to the day when other people, who have sat on their tails for far too long, can get their act together and complete this chronological compilation of the Western Australian fire tower story using the records they seem reluctant to part with. That would be nice.

Thank you for taking the time to read this book. I sincerely do hope it was a worthwhile use of your time.

Max Le Clercq

29 January 2023

## The Conservators

(Top row: Charles Lane Poole (l), Kim Kessell (r), bottom row: Bill Stoate (l), Bluey Harris (r))

