Tales of Forestry Fire Towers in SA by Forester Michael Bleby

My first encounter with a fire tower was as a Forestry student in 1967. Those of us on Forestry studentships with the State Government were assigned to various Forest Districts for work during the University vacation. My posting to Wirrabara Forest in the mid north of South Australia on this occasion included an introduction to Fire Season activities that were to be a part of my professional career for the next 40 years.

Wirrabara fire tower 1923 photo
Woods & Forests Dept Annual Report

Fire detection in the Northern District at that time was quite different from the other Forest Regions of the State. First reports of fire were nearly always by telephone to the Office or if it was after hours, the night switched phone to the Forester's house. Reports usually came from a neighbour or someone with a vantage point. The technicians at the 'Bluff' TV tower on a nearby high point of the Southern Flinders Ranges often called in with a smoke sighting as they had a commanding vista from their station. Sometimes the description meant the location needed confirmation and another sighting was needed. For this purpose there was a large open windmill like tower with a platform to stand on at the top, located on the ridge at the back of the District Forester's residence at the Headquarters.

Fire lookout towers have an alidade, usually made of brass, set and fixed at due North. Using a rotatable sighting arm, the bearing of a smoke column from that position can be read from its 360 degree compass rose. Once communicated to the office with an estimate of the distance from the tower, it is a simple matter of triangulation using 2 or more bearings plotted on a wall map, to fairly accurately pin point the location of a fire.

Although somewhat crude, the Wirrabara tower did the job on the few critical occasions a cross reference was needed. A quick run up the ridge and a climb up the tower would clarify the location of the smoke report. Current day Occupational Health and Safety would probably rule out standing on the narrow platform and hanging on with one hand to determine a bearing, let alone climbing up a narrow uncaged ladder.

Penola fire tower 1953
photo W&FD collection

My next fire tower encounter was at Penola Forest and part of the serious network of towers in the vast Pine plantations of the very flat landscape of the South East of SA. As a student I was assigned at times as a tower observer during vacation

Penola North 1990
photo Dennis Page (DRP)

employment. The Penola District had 3 fires towers, the principle Number 1 tower on Tower Road, the Nangwarry tower which was an open wooden box with a roof on top of the large concrete water tower in the town, and the tower at Patchells to the south in a remote location on top of a sand hill, which had a small cramped open cabin.

The Nangwarry and the South Patchells towers were manned when the Forest Fire Danger Rating was either Very High or Extreme, or when the general visibility was restricted for some reason. So when additional observers were needed, Forestry students were a logical choice for some different experiences of what was involved. The Penola North tower was manned when the Forest Fire Danger was Moderate or above, which was most days during the fire season unless there had been some rain.

Nangwarry fire tower 1974 photo MHB

I recall climbing up the steps located inside the Nangwarry water tower on hot days and before emerging on the roof, having to climb up a vertical ladder which went through the very center of the water storage at the top. On a hot day, this shaft was the coolest place in the South East. The view from this tower was a 360 degree horizon of level pine forest, which made estimating distance quite difficult. There were few reference points to assist a guesstimate of how far away a smoke sighting might be. There were the usual known sources of smoke to note, the stack at the distant Tarpeena sawmill, and the smoke stack just close by at the Nangwarry sawmill. The Regions sawmills all burnt sawdust and offcuts to generate steam for drying kilns and to generate electricity. As a tower observer, there were also the known bearings of rising dust from quarry operations including the occasional blasting to note, as well as the location of any large water winch irrigators which could cause spraymist. From a distance these be confused with low lying grey smoke.

Nangwarry fire tower alidade 1967 photo MHB

Views from Nangwarry fire tower 1967 photos MHB

We were trained to scan the horizon systematically with the supplied binoculars to pick up the first tell tail signs of a fire, and do a quick general 360 look around every now and then in case something had popped up behind you in the meantime. On one occasion doing a binocular scan, not realizing I had lost track of which direction I was facing, the nearby mill smoke came looming large in the binocular view, causing me to jump with panic till I realized what it was.

When based at Tantanoola Forest as a student in 1969 the Works Supervisor took me up to an open tower with no cabin – similar to the one at Wirrabara – which was located on Mt Watch west of Glencoe. This lookout was not regularly manned and used for occasional cross reference or when poor local visibility warranted extra lookouts.

Mt Watch fire tower 1968
photo MHB

Whoever was allocated to tower duties had to collect the tower gear from the office. This was a bag containing tower log sheets, pencils, a communication device, either a 2 way radio or a telephone which could have been an ex army field phone, binoculars, polaroid sun glasses and a hand held anemometer for measuring wind speed. This was either a simple calibrated tube with a hovering pith ball or a more sophisticated type with spinning cups. The polaroid sun glasses were part of the kit as they helped distinguish smoke from dust, as smoke becomes more defined with them on. Colour blindness ruled out some for tower duties, however a skilled observer had to be reliable, good at distance estimation and not easily bored. I remember listening to the radio – something that was allowed.

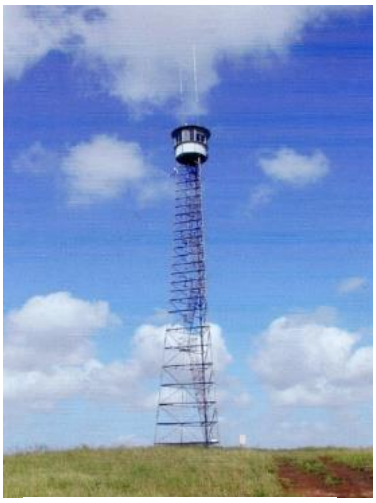
As a junior Forester stationed at Penola it was often my job to transport the duty tower man to the tower and collect him after his last call at the end of the day and take him home, sometimes as far as Kalangadoo. These were the days when there were not enough vehicles for the tower man to be independent. There were odd occasions when after shut down there was a plaintive "Is someone coming to get me ? " call on the internal phone to the house when the pick-up arrangements fell over.

In the 1970's tower communication was by internal phone, which consisted of a network of 2 strands of plain wire strung above ground on hardwood poles with insulators, running along fire breaks and tracks from the office to each tower. The Forester's houses at the HQ were also connected to the party line system and every place had its own short – long Morse Code type calling ring, created by turning the phone's generator handle. When the phone developed a fault, it meant having to do a patrol along the route through the forest to fix the line when a branch brought it down, which happened particularly after a storm, or if there was another fault for some other reason. I found it handy to carry a quantity of line joiners among the bits and pieces in my Landrover and later when the steel wires were replaced with an insulated pair of copper wires, so the crimp connectors (which extruded Vaseline into the joint) were always useful. By the late 1970's most fire towers were equipped with VHF two way radios, and tower calls could be much more usefully heard by all involved in the network, whether in the office or out in a vehicle.

The tower that we relied on the most during the summer in the South East Region was Mt Edward. It is a centrally located vantage point and could pick up most of the smoke sightings in the main

Mt Edward fire tower 1961
photo W&FD collection

forest plantation area. We got very used to hearing the voice of the regular observer in Mt Edward in those days. He would radio in his weather readings on the hour giving wind direction, speed and visibility along with the all clear if there were no fires. It was something people who were not "in the know" must have thought most odd, because foresters would instinctively look at their watch whenever they heard his voice first call to the listening base station, to see if it was on the hour. Because if it wasn't, it usually meant he was about to report a smoke sighting, and that something was happening.



Mt Edward fire tower today
photo DRP

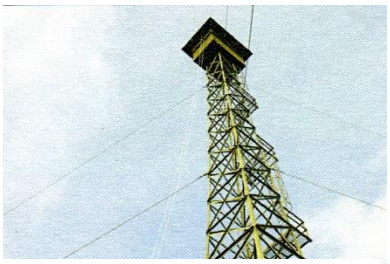
Each smoke sighting was given a number, its bearing and its distance. On a busy day, often towards the end of the fire season when lots of stubble burns were taking place, the number of reported smokes could be as many as 20 plus. The importance of permit burn notifications becomes obvious in such circumstances, although there were often occasions where further calls were needed to establish whether a particular fire required attention or not.

One of the stories of those days goes like this. He was sending his reports to the Mt Burr Office and District Forester had instructed him to report absolutely every smoke sighting to the office and let those in the Office decide on its importance. So this particular day he reported Fire number 1 bearing so and so, distance such and such. Then a minute or so later, Fire number 1 on a slightly different bearing, and then again a little later, fire number 1 on a different bearing again. A puzzled District Forester called him back - what's going on ? He replied, "you wanted to know every smoke sighting – there is a steam train running down the railway line! "

Mt Edward tower 1968 photo MHB

Another Mt Edward story many years later was with a different very anxious tower man. He called the Base quite agitated to report a fire and couldn't give a bearing or a distance, because the grass around the base of the tower itself was alight !

While at Penola forest, the internal phone rang in our house late one evening and it was my boss the District Forester from his house across the paddock. In his very English 'landed gentry' voice I heard "Err – hello Mike, Number 1's gone !" He meant that our Penola North fire tower was itself on fire. On turning the corner into Tower road to investigate, the distant tower in the darkness looked like a roman candle, with the cabin and each of the wooden landings at each ladder section well alight. Nothing much could be done except to let it burn and control anything at ground level from falling embers. We later concluded that the tower man must have that day, incompletely



Penola North fire tower 2008
photo ForestrySA Annual Report

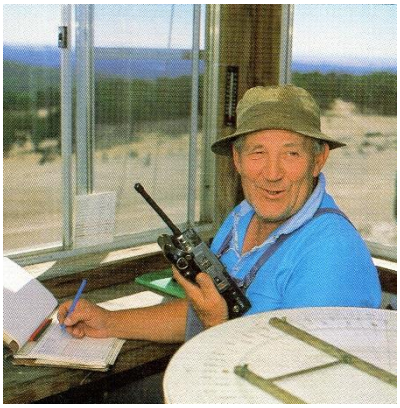
stubbed his cigarette on the floorboards, which hours later got going in the cabin and the falling embers lit up each of the wood floor landings below. This led to ensuring that ash trays of sand were always present in the cabin, and later there was a ban on all smoking in towers.

Mt Crawford fire tower today - photo http-mapio.netpicp-4708385

When I transferred to Mt Crawford as District Forester, I found the fire detection system in the Mt Lofty Ranges was different again. We had just one key forest observation tower at Tower Hill with no real ability to obtain cross reference bearings on smoke sightings. Many fires were notified directly to the CFS, often when still quite small. Smoke was usually seen by the one of the locals before it got high enough among the hills and the valleys to be seen by the tower, and with a much denser population there were far more eyes out and about than in the more sparsely populated flat South East Region. On Very High and Extreme days we had the added benefit of the CFS aerial detection patrols and our Forest HQ took radio calls from the aerial observers as they flew a circuit over the Mt Lofty Ranges. We also had a crude alidade mounted on a post at the Cudlee Creek Forest HQ to the South which was on a ridge. The resident supervisor could use it for quick reference on occasions.

There was also an observation cabin which had been built half way up an existing microwave tower to the North. It was located on a ridge about half way between Mt Crawford summit and the Kaiserstuhl peak at Pewsey Vale, which is just south of the Barossa Valley. The cabin was an awkward "L" shaped box with fairly ordinary visibility because various pillars and girders obscured much of the vista. Needless to say, it wasn't regularly used and I think has been since removed.

The Tower Hill observation tower was a squat brick building with box cabin on the roof. Access was by a removable ladder that lived in the locked building which also housed the base radio and its associated batteries. As there was no reticulated power to this site, the batteries were kept charged by a Davey-Dunlite wind generator, which was notorious for breakdowns and needing expensive repair issues which constantly arose. The wind blades got a particularly ceaseless work out on this exposed site.
The regular tower observer manned the tower on Ash Wednesday Feb 16th 1983 and I recall his 1000 hrs report to the office which said that deteriorating visibility due to raised dust was now reduced to about 50 metres. He returned to HQ and became a valuable mobile ground scout during the devastating fire that took place that afternoon.



MtCrawford fire tower 1990 photo Woods & Forests Dept Timber news

Mt Lofty summit 2008
photo Andre Belterman

It was after the first Ash Wednesday fire in 1980 that a new fire lookout tower was built at Mt Lofty summit. It was initially manned by the CFS and subsequently a brigade of volunteer observers. The advent of this tower, with its commanding view, gave us valuable cross reference information on smoke sightings. During the 1983 Ash Wednesday fires this tower was under threat and damaged by the fire that ran through the Cleland Wildlife Reserve.

I subsequently became familiar with the 4 fires towers of the Mt Burr District back in the South East of the State. They were the Noolook Forest tower at Mt Benson, the Furner tower, the tower at Mt Burr summit and a tower at the Bluff in the south. I was put in charge of the massive replanting exercise at Mt Burr after the devastation of the 1983 fires in the Region.

New Mt Benson fire tower Noolook forest photo DRP

The Mt Benson tower looked over the immediate area of the Noolook pine plantation and had useful cross reference views to the South. It was a gem on a clear summer's day, as it had views towards the coastal town of Robe, including the Baudin Rocks Conservation Park, and the Southern Ocean - with the occasional smoke of a passing ship to report for fun. The Mt Benson tower was joined on the site by a police communication tower during my involvement (as was Mt Burr), and later had a major refit to the cabin complete with a catwalk and sloping antiglare windows.

Mt Benson fire tower as in 1969
photo W&FD collection

The Furner tower was constructed in the mid 1970's after a major grass fire threatened the forest from the North. It covered an area that would give earlier warning and useful cross bearings for such grass fires. It was left unmanned during Moderate fire danger weather and was used at the higher end of the forest fire danger scale.

On one particular day the tower man collected the gear and left HQ to travel to the Furner tower. The office staff became concerned when his first weather report on the hour from the tower was not on time, and did not even come in late. They tried radio calls to his vehicle to no avail. Then a faint radio signal for help was picked up by chance from the Regional Base station and the message relayed to Mt Burr Forest HQ. We soon realized that the call was from the tower man who was in trouble. A supervisor was despatched to follow the route to the tower to investigate. Soon skid tracks were found crossing the road into the scrub. The unsealed road had plenty of loose gravel on a particular bend, and the upturned vehicle was soon found with its passenger, who was pretty shaken but thankfully not injured. His call for help somehow happened to get out in spite of the vehicle being upside down and the radio aerial being on the roof !

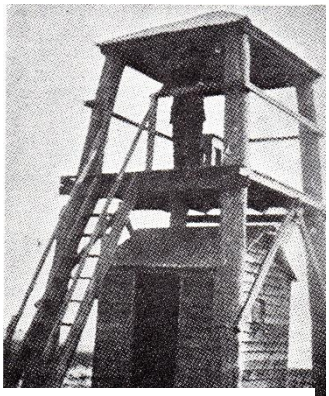
Furner fire tower circa 1978 photo W&FD collection

Due to its remote location I used to check out the Furner tower whenever I was nearby. Sometimes during the non Fire Season, a swarm of bees would decide the tower was a good spot for a hive. There had also been occasional vandalism and a requirement to fit reinforced bolts and padlocks at various times. One of the regular jobs was to do some tower "housekeeping". Cleanups were required, and removal of accumulated "reading material". Part of the observer training stressed that the job of the tower man is to observe constantly and not to read books or magazines. There were often understandable newspapers in the cabin to be cleaned up as one of the ways to determine wind direction was to let a small chit of paper go out the window and take a bearing of where it landed. However on regular occasions I found myself descending the ladder from a tower with a sack containing magazines that in this day and age, would only be sold with a brown paper covering !

There were also occasions when a tower clean up was required to remove literally millions of dead ladybird insects. For some unknown reason, during the off season, they were attracted in to the cabin of some fire towers in huge numbers that led to them being up to 30 cm deep on the cabin floor ! The vast numbers of insects was the result of a ladybird population explosion as a natural form of biological control during the autumn, of the Monterey Pine aphid that had arrived in the region. This particular aphid attacks the needles of Radiata pine causing defoliation, resulting in a significant impact on seasonal tree growth. Even entomology and fire towers can be connected !

Mt Burr fire tower photo DRP

Records show that fire spotting has been happening at Mt Burr since at least 1928. The current structure is the same vintage and design as Mt Edward, and has a commanding view being the highest point on the Mt Burr Range. It shared the site with the adjacent TV tower and buildings. This tall TV mast made the newspapers when it fell down in 1965 after initial construction, when undergoing guy wire testing. During my time as District Forester the steel cabin on the Mt Burr tower was replaced by a new fiberglass one which had to be hoisted up by a large crane. The same cabin renewal took place at Mt Edward.



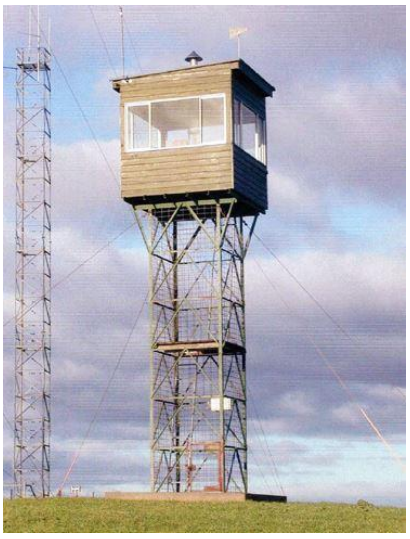
Mt Burr fire tower 1928 photo ex 100 Years of State Forestry

Before the use of radios for communication, the Mt Burr tower had a dedicated phone cable which ran from the Office to the summit. The old above ground wires had been replaced some years before with a more reliable underground line. It still developed its faults however, and I recall being able to get instant service from the Telecom technicians when I told them it was for a fire tower phone. This seemed

to get same day special priority to fix the line compared to other phone faults the general public might experience.

Mt Burr fire tower dwarfed by TV tower 1984
photo Woods & Forests Dept Annual Report

The Mt Burr tower was critical, as were they all, on the occasions when a dry thunderstorm went through with multiple lightning strikes to the ground. Sometimes the tower man would see a puff of smoke from such an event rise up and then disappear. He would report the bearing, but having disappeared, there was no chance of getting a cross sighting from another tower, or being sure about the distance from the tower. Even though the smoke may have died down or the fire been slowed by a shower of rain at the time, there was always a strong chance that there was a dormant hot spot out there that needed to be found and dealt with – lest it get going again in the days ahead when the fire danger might be high. Finding such fires was always a challenge. Several of us would go out to try and follow a line through the forest along the known bearing. This was a tricky thing to do with roads and fire breaks not necessarily being oriented in any useful way. It usually meant some slow driving, and some walking, but we did have some significant finds and were able to direct a fire truck and crew in to mop up the hot spot. Other brief smoke sightings had to go unfound with the hope that any rain had done its job. Otherwise it was just fingers crossed that it would not have enough heat to pop up again.



Bluff fire tower photo DRP

The most southern tower in the District was a relatively low tower in an open paddock on top of the Bluff south of Glencoe. It was clearly visible by travelers on the Princes Highway, and it had a very limited view to the North but a clear vista to the south and to the east. Mt Gambier was clearly in view, as were areas across to the Victorian border and land to the south west and the coastal Kongorong plantations. A smoke to the North would have to get up to a fairly high altitude before the observer at the Bluff would see it. A fire would often have to be going for some time for this to happen, nevertheless the Bluff was of most use for early detection from bearings through 90 to 270 degrees.

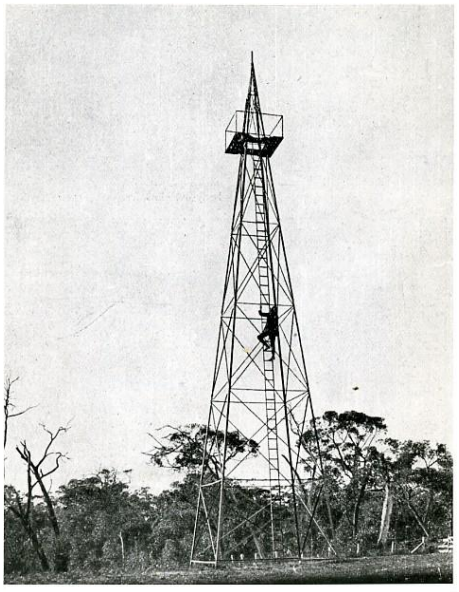
Centenary tower Mt Gambier
photo flickr.com

The Centenary tower on the rim of the Mt Gambier volcano, built in 1901, had been used as a fire lookout for many years. It was a key source of information with a clear 360 degree view over the whole of the southern portion of the Region. Responsibility for manning this well located but unusual landmark for a fire lookout, was with the forest

company Green Triangle Forest Products. The degree of cooperation of all the forest owners with respect to fire detection and suppression was exemplary.

There were other towers that were part of the overall Green Triangle network that I was familiar with and reports from these were in use all the time when I was Regional Duty Officer. These included the towers at Comaum Forest and the Myora Forest before its tower was closed, and towers over the border in Victoria at Rennick, Myaring and beyond. Although its use had discontinued before my involvement, there was a tower in earlier use at Caroline Forest. The first recorded observation tower in the Region and in SA (1918) was in fact located at Caroline Forest to the SE of Mt Gambier.

Comaum fire tower 1956
W&FD collection



Caroline forest first fire tower in SA 1918
photo W&FD collection

Caroline HQ fire tower 1953
photo W&FD collection

Comaum fire tower today
photo DRP

The forestry investment and the South East landscape in general has been and continues to be, well protected from fire by the systems that are in place. It results from the early detection work of the tower network, the good communication systems, the quick response, the hard hitting initial attack strategy, and the comprehensive pre-season planning and cooperation between forest owners and fire authorities.

Sample of the Fire Tower Log sheet used by observers.

W/F 193

LOG OF FIRE REPORTS

TOWER.....

FOREST RESERVE Date.....

N.B.—When more than one tower is manned avoid duplicating Fire Number on one reserve.

Time	REPORTS		WEATHER			FIRE DETAILS				REMARKS (Include here remarks as to exact location of fire, and volume, character, colour and type of smoke columns of significant fires.)	Initials
			WIND		Vis.	Fire No.	Bearing	Est. Dist.	Act. Dist.		
	From	To	Dir.	Speed							