

Cape Otway

by Lloyd Butler VK5BR

The Original version was first published in OTN March 2019
(The journal of the Radio Amateurs Old Timers Club of Australia).

If you are a regular commuter between Melbourne and Adelaide and haven't tried the Great Ocean Road, close to the southern coast of Victoria, then its time to do so and witness the magnificent scenery. If you are interested in the history of telegraph or visual means of communication, radar or safety of shipping, the short deviation from the Great Road to Cape Otway is a must.

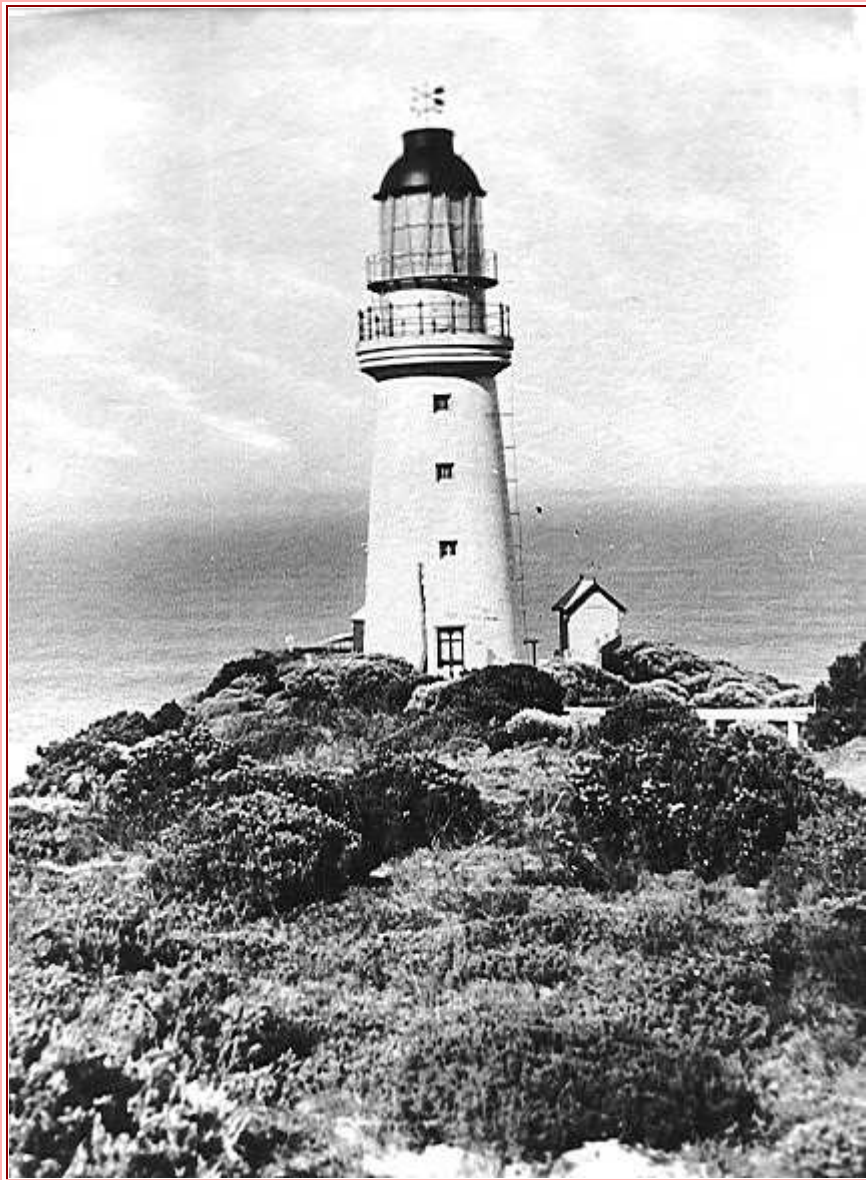
Introduction

I have traversed the scenic Victorian Great Ocean Road many times. But in 2011, with my family, I took the turn into Cape Otway and took in some of the history, complete with digital camera pictures. Reviewing the photos today, I figured that with a little bit of research into the history of the Cape, here was a bit of history for OTN. Much of the history is briefly displayed on bill-boards within the buildings and some history was found on the Internet. Many of the photos are my own, taken on the 2011 expedition. including several of the illustrations which were regenerated from those displayed on the bill-boards.

The Lighthouse

On reaching Cape Otway, the magnificent lighthouse structure towers over the rugged coastline. Cape Otway Lighthouse is the oldest surviving lighthouse on mainland Australia and considered the most significant. Built in 1848, the lighthouse known as the 'Beacon of Hope,' sits 90 metres above the pristine ocean of Bass Strait. Its light, at its top, beamed over the ocean for 146 years until it was replaced in 1994 by a solar powered unit.

Eight vessels were lost whilst the Light was operational: The Marie(1851), the Sacramento (1853), Schomberg (1855), The Loch Ard (1878), the Joseph H. Scammell (May 1891), Fiji (September 1891) and the Casino in 1932. The first American vessel sunk during World War II, the A class "SS City of Rayville" was also sunk off the Cape by a German mine in 1940. However, many more ships would have run into trouble without the bright Light guiding them safely through.



The Cape Otway Lighthouse in 1890

The original light had 21 parabolic reflectors in three groups of seven, each burning sperm whale oil. The early instruction books are filled with accounts of how the oil had to be kept up to the wicks, the wicks trimmed and monitored during the night and the individual parabolic reflectors located behind each light, kept as clean and reflective as the best French chamois would allow.

In 1905, an incandescent kerosene mantle replaced the oil and wick lamp increasing the brightness to 100,000 candles. In 1891, the original light was replaced with a modern revolving lens, burning a single colza oil wick lamp. (Colza oil is a nondrying oil obtained from rapeseed, sometimes confused with canola oil.)

Lightkeepers were charged with maintaining the light shining a Beacon of Hope on to Bass Strait to prevent any further loss of life. The Head Lightkeeper kindled the light at sunset and was on duty until 10pm. Assistants were in charge of the light from 10pm until sunrise, in two watches. Their chores included collecting firewood, and carting home supplies over kilometres of rough terrain.

They were also charged with painting and repairing the buildings, caring for stock and the lighthouse vegetable garden, as well as anything else deemed necessary by the Head Lightkeeper.

In 1939, the light and turning mechanism was converted to electric control and was powered by a diesel generator, increasing the brightness to 1 million candles. In 1962 it was connected to the electrical mains.



The Light Rotating Mechanism as photographed by Lloyd in 2011

By 1994 the Global Satellite Positioning (GPS) system had improved maritime navigation and safety and the 'old light' was turned off to be replaced with a small low powered solar beacon mounted directly seaward of the original tower.

The new solar powered light was powered by a 36-Watt 12 Volt lamp, easily supplied from a modest storage battery, kept charged by the solar cell unit . This unit can be seen mounted on the railing around the perimeter of the light unit. The light from 36 watts doesn't seem much power to be seen from ships 20 to 30 miles out to sea. But the light from these beacons is concentrated into a very narrow, but strong, beam using a parabolic reflector and special lenses. (By comparison, also remember that the early 1800 era lamps were merely lighted wicks fed with whale oil.) To cover all directions, the light assembly is continuously rotated giving the effect, from any direction, of a flashing light source.



This solar powered beacon replaced the light mechanism of the original tower in 1994



**The Cape Otway Lighthouse as it stands today.
The solar powered beacon which replaced the lighthouse light in 1994
is seaward of the tower and concealed from this viewpoint.**

At the time of de-commissioning in 1994, the specification of the lighthouse, with the 'old light', was recorded as follows:

LOCATION: latitude 38° 51' south, longitude 143° 29' east

OPERATOR: Australian Maritime Safety Authority

CHARACTER: Triple flash every 18.0 seconds

LENS SPEED Speed: 1 revolution per 90 seconds

POWER SOURCE: Mains with diesel standby

INTENSITY: White 1,000,000 CD Red 4,000 CD

ELEVATION: 91 Metres above sea level

RANGE: 26 nautical miles

HEIGHT: 20 Metres

The Telegraph Signals Station



**The Cape Otway Telegraph Signals Station and living quarters
as viewed from the lighthouse**

The Cape Otway light station was the longest running continuous light on Australia's mainland, but it was also so much more. It was the location of the telegraph station that ran between Tasmania and Victoria. It was opened in 1859, linking the Tasmania to mainland Australia by a submarine cable. It was the first submarine cable to that State, laid between Cape Otway and Tasmania. The telegraph cable was laid under Bass Strait from Cape Otway to King Island, by land across King island and then under sea again to Circular Head in Tasmania,

Apart from the telegraph office, the Cape Otway station has also housed the living quarters for the telegraph operators and their families. It has also been used as a post office, school, and a home for the lighthouse staff and for defence personnel in two world wars.

But Alas, the original submarine cable experienced many early problems with repeated cable breaks. The cable suffered from chafing due to the shoals and rocks on the sea bed around King Island, as well as damage from ships anchors. The first fault occurred only three weeks after the cable was brought into use. The circuit completely failed after 18 months and the service was finally abandoned on 24 January 1861. (It was Ten years later a cable was successfully laid between Cape Schanck on the Victorian coast and Low Head on the north east of Tasmania.)

Following that failure, the Cape Otway telegraph station became the Lloyds signal station, allowing people in Melbourne to be made aware of all the vessels passing by the Straight. The Cape Otway electric telegraph was then used to signal by land line to Queenscliff and Melbourne the names of sailing ships sighted at the Cape, together with details of their passengers and cargo. This information was obtained from ships using Naval Signal Flags hung on halyards from masts at the Cape Otway station and on board the ships.



Signal Flags mounted on Halyard at Cape Otway

A		I have a diver down, keep well clear at all times.	N		No (negative or "the significance of the previous group should be read in the negative").			
B		Hampering or discharging or carrying dangerous goods.	O		Man overboard.			
C		Yes (affirmative or "the significance of the previous group should be read in the affirmative").	P		In the boat (black flag): All persons should report on board as the vessel is about to proceed to sea.			
D		Keep clear of me - I am maneuvering with difficulty.	Q		My vessel is healthy and I request no assistance.			
E		I am altering my course to starboard.	R		No signal.			
F		I am disabled, communicate with me.	S		My engines are going astern.			
G		I require a Pilot.	T		Keep clear of me, I am engaged in pair trawling.			
H		I have a Pilot on board.	U		You are running into danger.			
I		I am altering my course to port.	V		I require assistance.			
J		I am on fire and have dangerous cargo on board, keep well clear of me.	W		I require medical assistance.			
K		I wish to communicate with you.	X		Stop carrying out your maneuvers and watch for my signals.			
L		You should stop your vessel instantly.	Y		I am dragging my anchor.			
M		My vessel is stopped & making no way through the water.	Z		I require a tug.			
NUMERAL PENDANTS								
	2		3		4		5	
	7		8		9		0	
SUBSTITUTES								
		SECOND SUBSTITUTE		THIRD SUBSTITUTE				

The Alphabet with Signal Flags
On display at the Cape Otway Signals Station
(Each letter of the alphabet, and each numeral,
is identified by a unique design and colour.

The World War Cape Otway Radar

Of course Cape Otway Light Station is also a home to the World War II secret bunker. Today the bunker, on the cliff at Cape Otway National Park, nestled behind the area's much-visited lighthouse, is almost a forgotten relic. It was built in 1942 and it played a significant role in Australian and American war history for four years.

At their peak there were 124 separate RAAF radar units in operation in mainland Australia and the Pacific Islands, and No. 13, Cape Otway was one of four in Bass Strait. (The others were at Wilsons Promontory, Metung and Gabo Island.)

Data collected from these stations was sent by wireless telegraphy to the top-secret Air Defence Headquarters at 7FS Preston, Melbourne. Cape Otway, the first radar station on the southern coast, transmitted its "secret" information to Headquarters by a "party line" telephone shared with Otway's farmers.

Information was plotted on the main operations board so aircraft could be dispatched to investigate or engage unidentified or hostile aircraft, ships or submarines.

During No.13 Radar Station's four years of operation there were up to 50 RAAF personnel stationed at Cape Otway.

Ultimately, the actions of mine-laying German surface raiders, Japanese submarines and aircraft claimed 41 allied ships in Australian waters. The radar stations in Bass Strait, including Cape Otway, were indeed an important element in detecting enemy ships.

Many ships fell victim to mines laid by enemy ships. One vessel, the *Passat*, slipped 40 mines into waters off Cape Otway. The vessel had been detected by the signal station at Wilsons Promontory and challenged. The Germans explained that the tanker was due in Melbourne with its cargo of fuel. Technically this was correct as there was a Norwegian ship, called the *Storstad*, due in Melbourne. However the Germans had hijacked it near Borneo, renaming it the *Passat*.



The old bunker which contained the World War 2 Radar

The radar gear used in the bunker during WW2 is long gone. However a display now in the bunker describes how the Radar worked : The Radar Operator would sweep the Antenna up to 360 degrees looking for "Blips" above the Cathode Ray Oscilloscope trace line on his screen. If an Air Craft or Ship was detected, he would then focus the antenna and pass range and bearing to a second Radar Operator. These co-ordinates were then plotted on a grid and passed on to the Wireless Telegraphy Operator for transmission to headquarters in Melbourne.

Much of the display was caught by the eye of my camera including the operational diagram and the range of the radar stations in Bass Strait. These are reprinted as part of my article.

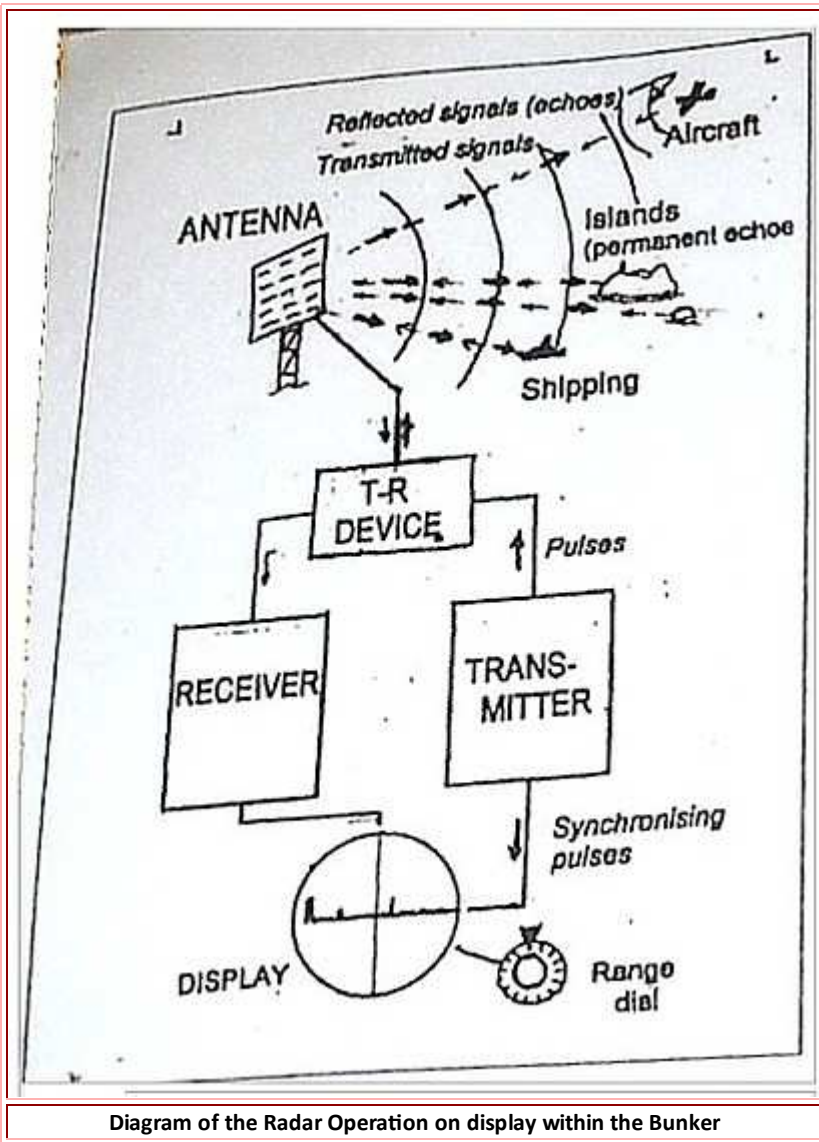
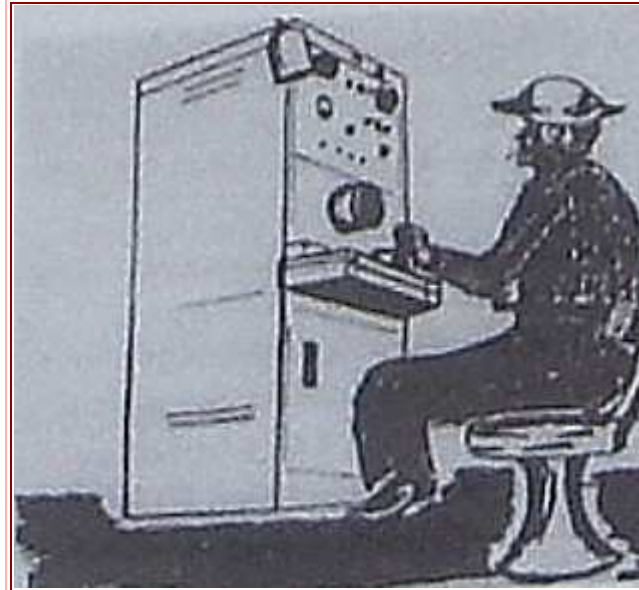
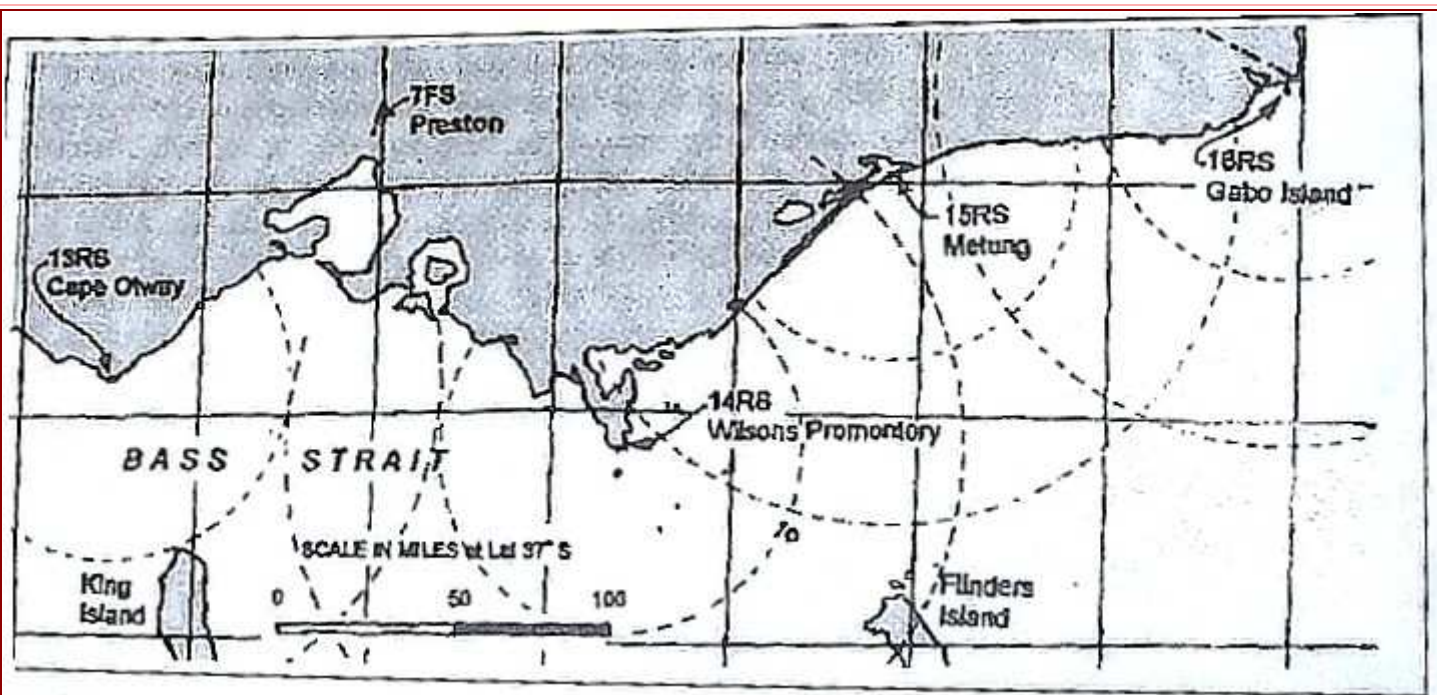


Diagram of the Radar Operation on display within the Bunker



On Display in Bunker- Depiction of the Radar Operator



On Display in Bunker - Radar coverage of stations on Bass Strait

Summary

I have described what I have learned about what I might call the Communications History of Cape Otway. The visit to the Cape was well worth while. We visited the oldest surviving lighthouse on the mainland, the site of the first submarine telegraph cable terminal in Victoria, and the site of one of the four radar stations set up in WW2 to detect enemy warships in Bass Strait.

It is of interest that a number of our RAOTC members serviced the radar stations around Australia and further north, in WW2 . One in particular, returning to civil life, also worked for years on the lighting technical equipment at many of the Australian lighthouses.



An aerial view of the Cape Otway Signals Station showing the location of the lighthouse in relation to the living quarters and the telegraph station. The small white dot of the solar powered beacon can be seen to the right of the lighthouse, perched on top of the 90 m cliffs. The small grey rectangle to the lower left of the telegraph station amongst the trees is the radar bunker.

References

The number of results thrown up from "Cape Otway" on the Internet are numerous. Here are a few typical Internet addresses:

http://www.lighthouses.org.au/llghtS/VIC/Cape_Otway/Cape_Otway.htm

https://en.wikipedia.org/wiki/Cape_Otway

[www.radarreturns.net.au/archive/Cape Otway.pdf](http://www.radarreturns.net.au/archive/Cape%20Otway.pdf)

<http://atlantic-cable.com//CableCos/Australia/>