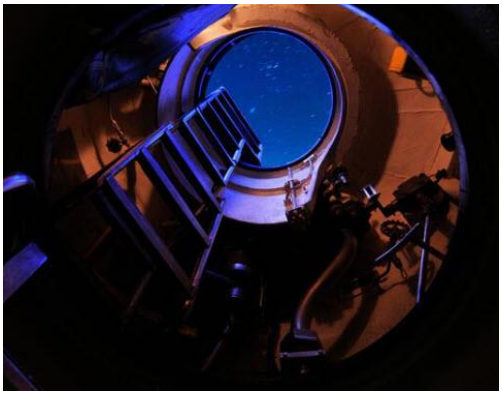
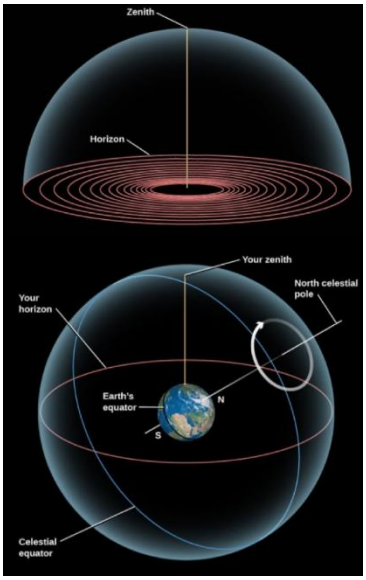
Standing a Bridge Watch

One of the huge advantages of riding diesel-powered submarines was the duality of power. Choosing the source of power and operation made life on the submarine slightly different than the constant nuclear power on the "Nucs". Other than entering and leaving port from or to the closest hundred fathom curve, there was no benefit to being on the surface for the nuclear-powered boats. You spent your time at sea submerged. Now, then, it was true that running the diesels submerged with the snorkel mast up, satisfied their need for air. However, the designed pathway of the much-needed air was a little obtuse. Snorkeling forced a constant windstorm through the control room, the crew's mess and eventually the engine room, where the sixteen cylinders fought for their gulps of air. Being on the surface allowed for a number of pathways for the needed air to travel, one of them being the bridge access hatch. Finally, on the surface diesel boats had higher speeds.



Three separate ladders allowed you access between the control room and the bridge deck of the submarine through two watertight pressure hatches. However, to use those ladders that controlled the access, you needed permission and purpose. Only one person could grant permission. The Watch Officer, who accepted the role by stating his name followed by "I have the Deck and the Con"; meaning he was responsible for every activity of the boat's operation, the "Deck" meaning the bridge deck and "Con" being the control room. The "deck" meaning the surrounding external universe and "Con" meaning the control of the boat – your tiny universe.

Obtaining permission to go to the bridge to stand a bridge watch, you started your ascent to an entirely different perspective of the external universe. It was best that you change your thinking about your position within the internal universe from this new perspective as your zenith and view of the horizon took on a new purpose for you and all of your shipmates.



Once you had nearly ascended the three ladders and were just at the opening of the final hatch to the bridge, you would again get permission, this time from the second in command – the watch officer. A simple "permission to come up" request, will let you know it is OK for you to proceed. If he denies permission, then it is back down the ladder, and no time for you on the bridge. For the sake of this paper, let's assume you get permission. So, it is now time for you to change your perspective.

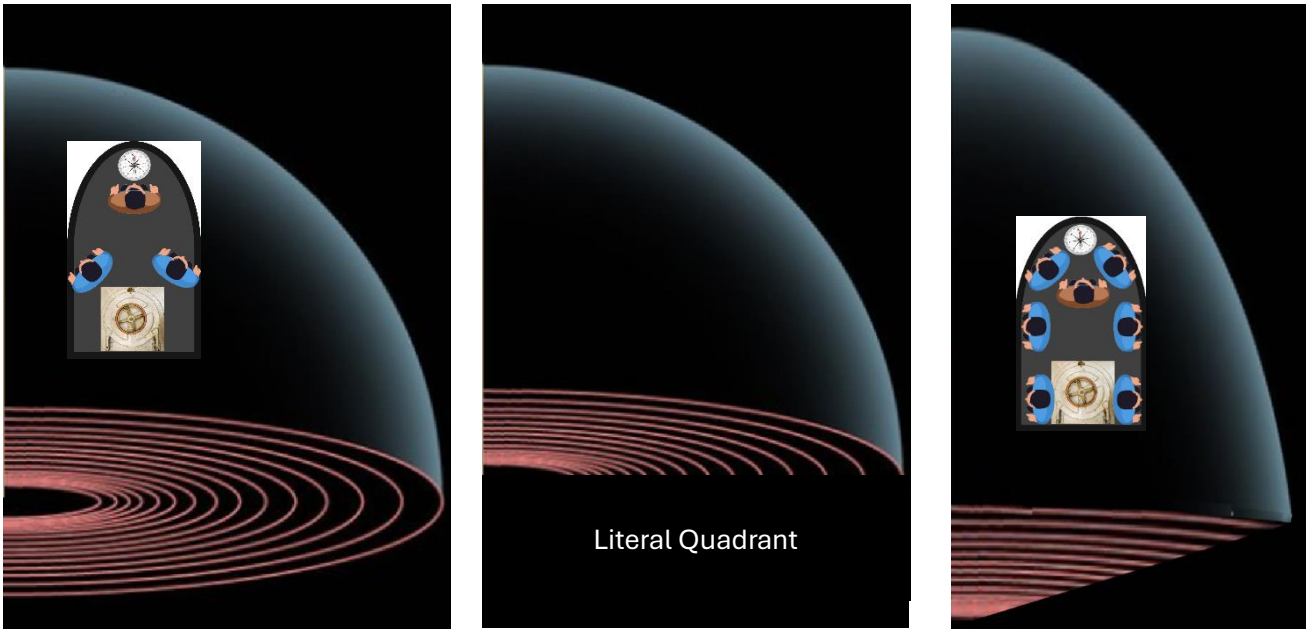
Now then the picture on the immediate left here does not show your perspective of the horizon accurately. This is where the detail of this chapter of SeeStories kicks in. There is a set of Power Point slides that accompany this paper. You should download them and use them because the small pictures shown here are just too small to fully understand them.

When you climb out of the hatch you will be a welcome addition to the bridge watch if it was minimally manned as shown on the left here. One of the people up there is a quartermaster and he has with him various navigation and lookout tools. He will most likely provide you with binoculars and suggest a position to take. You will eventually be responsible for the vector he positions you in. And that broaches the subject of the

HORIZON.

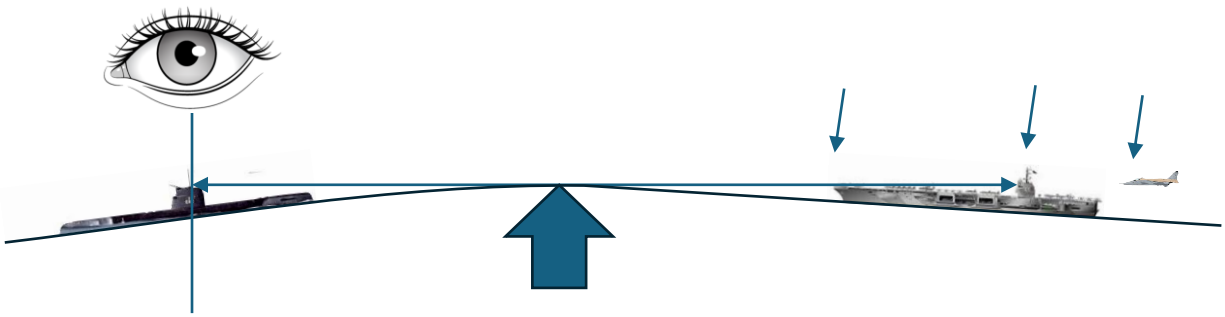
The scene above is not your view standing waste deep in the ocean, where your "horizon" is just about 3 miles away. You just climbed 3 sections of ladders taking you to a height of about 20 to 25 feet, and with that additional height your horizon is now about 6 miles away. As the ship crosses through the ocean swells the entire ship rises and falls with the peaks and troughs. So, your "horizon line" is a variable. Again, check out slide # 5 of the power point presentation for the details of this issue, because your attention is going to be riveted on that moving horizon line.

To make that even more difficult, your task is to give as much advance notice as you can of any contact, be it ship or aircraft. The first glimpse you will have will be on that horizon line, unless it is a contact from another vector, passed to you by your partner watch stander standing to your right or your left. Those little lights right on the horizon line might be a ship or an aircraft, friend or foe. It is your job to watch and determine if they are just stars on that horizon or something you are going to be responsible for as long as you are standing on your bridge watch. Now then, I've marked the probables for you in this picture with red arrows. The others above the horizon line are just stars.



The first simplification you have on this “reporting” and “tracking” responsibility is the horizontal axis width of your part of the watch. If it is just the two of you, the quartermaster and you, you will split the 360-degree horizon line into two equal parts; port and starboard, (left and right) starting at the bow and working your way backwards towards the stern, until you have “swept” 180 degrees of relative compass. Like the first of the three pictures above on the left. Then if there are four of you, you would each take a 90-degree sector, like the center picture of the three, the literal quadrant. Finally, the more watch standers you can fit up there in the top of the sail, you can keep dividing the span of each sector downward, like the third picture of the three on the extreme right, which is almost 60 degrees, for each of six watch standers (if you could fit six people up there).

Now for yet another division of who gets which sector, if there are more than two watch standers. If that is an option then the most senior and experienced watch standers get the segments closest to dead ahead. The more junior or inexperienced work their way aft, Why? you might ask. The answer is very practical. The ship is moving forward pretty quickly so things coming over the horizon dead ahead are going to appear faster than those that are astern of you. The faster the targets come at you, the more experienced the observer has to be. The decisions as to friend / foe and threat / no threat have to be made quickly. It’s that simple. I remember one time watching a rendezvous with the USS Midway. We spotted the flight deck first and made the call. Then the super-structure came over the horizon and we confirmed “the call”.



There is one more aspect to standing the bridge watch and trying to determine if that little dot of light coming over the horizon is a threat or not. There is a physiological issue with human eyesight that comes into play. Everyone has a "blind spot" in their vision. It is a location on the exact back of the eye. It is the spot of the eyeball where the optic nerve departs and there are no rods and cones at that location. There is nothing to even see a single point of light on the horizon.

If you think you see a spot of light on the horizon, look away from it about a half an inch or two in your scaled vision of that horizon location. Don't be surprised if what you think might be a spot of light coming over the horizon and it appears and disappears as you make that slight half-inch move; it most likely is a contact.

The next physiological issue you have to deal with is what we called a "visual memory". If you are concentrating on the external universe's horizon line, searching for new points of light, you have to break up the visual monotony that will develop if not done in a way to deal with the visual memory. The horizon line looks extremely familiar within your vision's Macula enhanced detection capability. When looking at the horizon that is about six to nine miles away, you only really "see" things for about twenty degrees of compass, the remaining 40 degrees of compass (20 degrees on either side) is in your very inaccurate peripheral vision. So, the following procedure should be followed to deal with the issues of "visual memory".

1. Move your head to the most forward part of your sector.
2. If the person on watch "ahead" of your sector has passed you a contact moving into your sector start there.
3. Concentrate your un-aided eyesight on that "start" location.
4. Mentally count to 5 and raise your binoculars.

If you see anything new or different in the next six steps, about contacts you may have seen on the previous scan, report the differences. With "Contact @ XXX degrees has _____ and is now @ XXX degrees".

5. Begin your slow sweep aft. If you are on the port side (left) scan to your left. If you are on the starboard (right) side scan to your right.
6. At every point of light in your scan of the horizon line stop your scan, when that light is centered in your vision.
7. Move your head 5 degrees backwards, confirm the light, move back and stop at the light again. If you can determine that the light is NOT a star. Report it.
8. When your scan gets to the end of your sector (aft) any contacts that are moving further aft should be reported to your fellow watch stander with the sector further aft from yours.
9. Lower your binoculars.
10. Look up or down such that the horizon line is in your periphery vision and by no means centered in your vision. Slowly move your head back to the position it was in for step 1 and repeat this process.

Keep in mind that each sweep of your sector should take about 4 to 8 minutes. If the officer of the deck tells you to not inform him with too frequent notifications, follow that as an order for him. However, keep the watch stander to your right and left of any contact movement that might impact their scans at the point where your scan and theirs meet.

There you have it. All the factors that have to be considered for **Standing a Bridge Watch**.