



TRANSCRIPT OF ORAL HISTORY RECORDING

Accession number	S01013
Title	(Not applicable) Knight, Sir Harold Murray (Lieutenant)
Interviewer	Stokes, Edward
Place made	Not stated
Date made	18 January 1991
Description	Sir Harold Murray Knight as a lieutenant, HMAS Benalla, interviewed by Edward Stokes for The Keith Murdoch Sound Archive of Australia in the War of 1939-45.

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BEGIN TAPE 1, SIDE A.

This is Ed Stokes, corvettes, Sir Harold Knight, tape one, side one.

Sir Harold, could we begin, please, with your date and place of birth?

Yes. I was born on 13th August, 1919, in Port Melbourne - Dribe Street. That's a long time ago.

Yes. And, and did you grow up in the Melbourne area or elsewhere?

Yes, my Dad drove a train between Sandringham and Broadmeadows, and he bought a house in North Brighton, and I spent most of my early years, right through till after the war, based on that house in North Brighton.

And your schooling was there?

The local Brighton State School, the Elwood Central School, and three years on a scholarship at Scotch College.

Right. [Break in recording].

You were saying, Sir Harold, that you joined the Commonwealth Bank in January '36. Just looking at the period leading up to that, and perhaps the few years after that, how conscious were you as a young man of the political developments in Europe?

I suppose, like most people in Australia, it was from '37 through to '39 that the threat of the German expansion policy became close and real. Before that I don't think I was very much aware of it.

And what about the activities of the Japanese, in China in particular - was there any thought there of what might happen in the future?

There weren't satellites. The media was a much slower, lower profile thing, and that really didn't seem to have much to do with us.

And the general tradition of the ANZACs, their achievements in the first war and so on, was that a particularly conscious part of your childhood and early manhood, or not?

This was something that was written up, and talked about, and acted out a bit on ANZAC Day, and Armistice Day. But children observe these occasions without them necessarily biting very deeply into their consciousness.

Right. The work in the Commonwealth Bank for the years leading up to the war, could you just outline briefly what you were doing?

Started as postages, moved on to handling cheques in the exchanges, ledger-keeping, tellers' records. Work in a branch. Just normal commercial banking junior duties.

So obviously there was quite a degree of mathematical computation, if you like, that I would assume fed later into your survey work?

Well the bank work was just plain old arithmetic. The maths that I got at Scotch was quite good maths.

Right. The outbreak of war in 1939, do you recall that, do you recall Menzies' speech?

Yes, I do. I can recall the logical train that said that because Britain's ultimatum had expired, Britain was at war, and so we were too. I can remember that broadcast very clearly.

Do you remember where you were, who you were with at the time?

No. I think I probably heard the broadcast in our home in North Brighton. And I do recall that people got out on the - the main street of North Brighton, and walked up and down all hours of night. I was with some young people in that walking up and down of the main street. It seemed a real disturbance, a real major item of news. But we didn't quite know what it was all about.

Mmm. There was no sense of how it might affect your life in the coming years?

No.

Right.

Your decision to enlist in July '40, it was to be the army. Why the army?

My brother and I talked about it. My brother was barred from the navy, because he had a defective colour vision. And so he was obliged to take army or air force, he took army. And we both were interested in technical things, and it seemed interesting to go to a technical unit in the army, so we chose the sound ranging battery of the 2/1st Survey Regiment. And that's where we both joined.

How did you manage to make that specific choice as to what you would do in the army before enlisting?

Oh, we talked around a bit, and, you know, as one talks around, and rattles hither and yon, one strikes these things, and we happened to come across this unit which needed people who had reasonable maths, and an interest in technology. And they were quite happy to say that they would reach into our boot camp and take us into their unit.

I see, right. And was your brother, incidentally, older or younger than yourself?

(5.00) An older brother. He finished up as a paymaster, and was a POW with the Japanese, and he's buried in Burma.

I'm sorry.

Your training I think was at Broadmeadows, your initial army training. What do you remember of that?

World war one huts made of corrugated iron, with the icy, wintry wind whistling through. We got a rubbish tin, and put it on a sheet of corrugated iron in the middle of the hut, and fuelled it with coke stolen from the hot water service of the officers' mess. But it was still miserably cold. (Laughs).

Fairly primitive. The discipline aspect of your induction to the army, was that difficult to cope with or not?

There was a certain amount of learning to form threes, and left wheel, and so forth. We took that in our stride. And of course the interesting thing was the technology of the sound ranging work, which was electromechanical, and surveying.

Yes, well let's turn to the training that obviously fed directly into your naval work. You were saying some of the key aspects were trigonometry, logs of course, establishing true north, latitude, longitude, working with a theodolite. What were the most difficult aspects of the training to master?

Well it all built very nicely on the work I had done at Scotch, and on my acquaintance with what now seems, looking back, to be the rather primitive electronic technology of the day. But I was *au fait* with the vacuum tube technology of the day, and the sound ranging technology fitted comfortably within that framework. So I found the whole thing more or less fairly readily within my scope.

How long was the period of training, and how much of the training was theoretical training, how much of it was practical training in the field?

We had equipment, it wasn't very glorified equipment. And it was largely hands-on training. Exercises in the field. And it wasn't all classroom stuff, and - I would say that it was about one-third classroom, and two-thirds hands-on and field training.

I think you were saying, Sir Harold, you were promoted lieutenant before you were posted to a unit on the south coast to complete topographical maps, is that correct?

Yes.

At that time how would you rate your training, from a spectrum from excellent to good to adequate?

I think the army did a first-class job of training the people who were being fitted to run that unit for that work. They all finished up very competent in the things that they were supposed to do.

Well you did go, I think it was to near Moruya on the south coast to complete topographical maps. I think this was in case of possible invasion. Could you outline that work?

Yes. The country behind Moruya is rainforest, and the work involved picking up the existing trigonometrical survey, there are positions fixed through that whole area, and breaking it down to the stage where one could map the forest logging roads, and map the hills and valleys of the rather rugged country in behind Moruya. And we turned out topographical maps of that area.

So this was really filling in the details of existing maps, was it?

Yes. The existing work was only in outline, showed main roads, and boundaries on a fairly wide scale. We were filling that in in considerably more detail so that people could move, using our maps, from point to point in the most efficient way.

How long would it take for a small survey party to cover a certain area of ground?

We had four vehicles, and four topographical parties, and I think we were working at Moruya for something like six months.

Right. And during that period what general area had you mapped?

Well I suppose we would have mapped about twenty miles west, and ten miles north, and ten miles south of Moruya.

So that's quite intensive.

I understand that you felt you were really going nowhere, doing this work. Was it that you wished to go overseas, or was it just that you felt the work itself was not relevant?

I suppose I've always sought to make some kind of a contribution wherever I've been, and I couldn't really see that what I was doing was making much of a contribution.

Right. Well I understand this led you to searching round, through different avenues, and various meetings with the navy in Sydney. Could you outline what happened? And, in particular, how much of it was personal initiative that led to your posting to obviously a post that suited your training?

(10.00) The skills I had included a fair acquaintance with electromechanical and electronic gadgets. And it seemed to me that one of the places where this work was needed was in the anti-submarine branch of the navy. And so, whenever I could get to Sydney, I would call on a two-striper, a lieut in the navy, called Eggleton, who was a recruiting officer, and tell him that he needed me as a ping man, an anti-submarine officer.

But of course that was a very popular branch, and he was always telling me with a sad face, that he was full up and couldn't take me. And on one occasion I said to him, 'Well I'll just have to go back to my army survey unit'. And that galvanised him into life, he was

desperately keen to get surveyors, he was very short of surveyors, and I was in the navy in about four weeks.

> But how common was it for men to find their own channel, if you, like into the service, into the navy. Establishing a niche for themselves, before being drafted into the navy?

I can't speak particularly to the navy, but I think that survey regiment, that survey battery in the army was full of over-qualified people. And I was observing - I was one of the slow ones - I was observing that the others were going off, to the air force, to different branches where their skills would be better used, and I was one of the ones who went off.

> Right. Well you joined the navy, I think, as a sub-lieutenant, and you went straight to - you were given a hydrographic posting. Where did you do your initial naval training?

I think the first thing that was done with me was to give me some leave in Sydney to get a uniform made, by Kitcheners, and then I was sent off down to Flinders, nominally to take a gunnery course. But it turned out that I arrived three days late for the gunnery course, so they thought it would be appropriate for me to have a course in anti-gas warfare instead. And when I completed that I went home on a few days leave, and got a telegram saying, 'Appoints you to *Benalla*, repair to your duty forthwith'. So I did.

> Right. (Laughs). And I think in the course of this there'd been nil seamanship training?

Zero.

> Well perhaps we'll come back to that in a moment.

> I think you joined the *Benalla* during her completion, before she was commissioned?

She had been commissioned, and she was in the process of her working-up trials on Port Phillip Bay. This is after commissioning and before she's taken as a fully effective unit, the ship's company settles down, and tries out a depth charge, and tries out action stations, tries out a variety of exercises, to make sure everything works. After commissioning, and before she goes into service.

During that working-up period, based on - well, from Port Phillip, how were you involved, given the fact that you had very little, if any, experience with ships?

Well the commanding officer gave me a turn at giving helm and engine orders on the bridge, which I occupied more or less effectively. It was a learning period when I really didn't know much about ship's routine, and I was green, raw, wet behind the ears, and I learnt how to be someone on a ship, with great embarrassment, great difficulty. But I learnt. (Laughs).

Right. Just a moment. [Break in recording].

The corvettes were a particular breed of ship, Sir Harold. How do you remember the *Benalla*, as a ship, as a seagoing vessel?

She was very unkindly in a sea way. I recall that our first time at sea was as escort to a convoy from Melbourne around to Sydney. And in Bass Strait she bucked to the extent that a plate of fried eggs on toast in front of the first lieutenant flew over his left shoulder and landed upside down on the radio on the floor. (Laughs). She had every kind of motion, she would bury her nose, stick her stern up in the air, and waggle, and it was very uncomfortable.

Sure. Was seasickness a problem for you, or not?

It was a problem for most people on that trip. The anti-submarine officer had a bucket between his knees. Yes, I was seasick, and so were many others. (Laughs).

Did that fade away for yourself with time, or was it always there in heavy weather?

No, I didn't have any trouble at all after the first days. This varied of course from person to person. We had a chief steward who spent six weeks at sea, and was thoroughly miserable all the time. He was eventually given a shore draft. And Captain George Tancred, one of my COs always got seasick first time at sea after a period on shore. (Laughs).

A real Nelson man.

The physical aspects of the ship itself, your working spaces, and your living spaces, how do you remember them? Perhaps starting with the ward room, and - did you have individual cabins, or not?

(15.00) The subbies had two-man cabins. There was a kind of a jug-and-bucket-underneath washstand, and the heads and the showers were adequate and comfortable, the ward room was adequate and comfortable. I remember the living conditions as being good, although very, very hot in tropical conditions.

And what about the working spaces for working on your charts, and doing the other work essential for the survey?

There was a deckhouse built abaft the normal deckhouse on a corvette. And that deckhouse would be blacked out at night, and it had chart tables in it. Our job was to work on those chart tables at night. And there were DC fans; the ship was on direct current of course, which operated. And you put a towel under your elbows so that you wouldn't drip sweat on your chart board, and the fan kept you a little bit cooler than you otherwise would be, and you could work.

Right. The bridge, how spacious or otherwise was that?

It was pretty adequate. We had a port lookout, a starboard lookout. And the ping man in his little box, and the officer of the watch. And the chart table was quite adequate. It was hooded of course, and it had a light, that you could duck in there and plot your fixes. It was a very comfortable bridge to work on.

And what about the relationships amongst the crew, was there a degree of informality, given that it was a small ship, or not?

This was a nice balance. The commanding officer kept himself aloof, and insisted on formality. The first lieutenant ran his defaulters, and handed out his punishments, and permitted people to grow whiskers or not. Discontinue shaving. There was certainly a degree of formality maintained, but there was also an ease of working relationships which worked very well.

Were junior officers ever on first name terms with chiefs and petty officers, or not?

[A pause]. As I recall it the downward communication was alright. I would call my leading hand survey assistant 'Jack', Jack Kidd. He would call me Mr Knight.

Right. The morale of the ship's crew, as you spent that year aboard her, how do you remember that? And how was it affected by the qualities of the commanding officer?

Morale in *Benalla* was quite good. It was a happy ship. And there was of course a division between the people who operated the ship, the normal ship's crew, who didn't know much about surveying, and the people who did the survey work. But, although there was that pretty sharp division in terms of technical equipment, the people got along very well.

> Yes. I'd imagine it must often have been quite tedious for the regular ship's company while the survey was going on, and obviously the ship was not proceeding anywhere at any great pace. How did they fill their days?

Well there's always maintenance work for people who are ship's company. And the ship in fact steamed quite a lot, because the ship did survey work as a very large sounding boat.

> Right. Well you were saying, Sir Harold, that after proceeding to Sydney, I think you took on survey stores there. By that I assume you meant technical equipment, and so on, is that correct?

Buoys, anchors, steel cable for mooring buoys. Long bamboo poles for making marks. Bolts of calico for draping marks so they'd be visible from a long distance. Enormous flags to put on top of marks. Wire for the tautwire measuring gear. There's an innumerable range of things you need, of a nuts and bolts kind, for a survey. And all these things came swarming down to the wharf, and down into the aft hold.

> Right. (Laughs). That's a lovely description.

The aft minesweeping flat.

> Right. The captain, George Tancred, was an experienced surveyor himself. How did his arrival affect the - your view of the work to come.

You don't really know what the work is going to be like until you find yourself doing it. But I was reassured that we had swapped a merchant navy commanding officer, who was very adequate to convoy work, for someone who was a hydrographic surveyor, and who talked my language.

> Right. The ship proceeded, I know, to forward areas around New Guinea. And during this period I think you were also establishing yourself as a watchkeeping officer. How did that evolve?

There wasn't any question right from the start that I was a deck officer. But equally there wasn't any question, in my mind or anybody else's, that I was a very inexperienced deck officer. So I was assigned to keep watch as number two, with a more experienced subbie.

And that ran for something like two or three months, at the end of which time I was given a provisional watchkeeping certificate, and I was assigned to keep watch perhaps on passage, where we weren't expected to meet traffic at night, and by day when there wasn't any question of getting into any difficulties.

And after a period with a provisional watchkeeping certificate I was given a sort of a rough passing out exam by Captain George, and I was told to go off and type myself up a watchkeeping certificate, and I was a watchkeeper.

(20.00) I think this involved a fairly tortuous passage?

Well the ship was coming south from Milne Bay to Cairns. And to do that you have to go through China Strait, some very restricted waters with strong currents, between Samarai (Dinner Island), and the mainland. And Captain George said, 'Harry, I want you to take her through here'.

So I took over the watch, and the con, and fixed the ship's position frequently, and corrected the course in order to offset the influence of the currents, and got her through in one piece, I think in reasonable form. And after we went through, Captain George said, 'Well Harry, type yourself up a watchkeeping certificate'. So I did.

That must have been quite a step forward.

A kind of passing out parade.

The *Benalla* was part of the US 7th Fleet, I think you were saying, Task Force 70.1. You were saying, Sir Harold, that there were really three clear areas of work, the clearing of sea lanes, harbour surveys, and approach lanes for landings. Perhaps looking at them in that order, working on the sea lanes, what were the main aspects of that work?

When you go from Milne Bay to Buna, you go through some waters north of New Guinea, north of the east end of New Guinea, that are very, very heavily infested with coral reefs. And the work there was to find some straight lanes where you could tell ships, 'Steam ten miles on a heading of so-and-so, with such-and-such a point ahead of you, and you'll be in clear water, and you won't hit any reefs. And then when you get such-and-such abeam, turn to a different course, and head for something else.' And so one established clear lanes, on which the inexperienced captains of liberty ships could steam without running aground.

And I assume those clear lanes were all fully sounded along their course?

We made quite sure that if somebody stayed in those lanes they wouldn't go aground.

And how were they marked?

Some of them were designated by natural features. You kept the right edge of a particular cape, on a bearing of 042, or you kept a particular tree in line with the top of a particular hill. Others of them were marked with lights - we had a ship which worked with lights, and there were gas lights. And sometimes there were actual leads, with one light behind another, which would help a ship to see how to get through by night.

Right.

The second aspect, harbour surveys: this I assume was charting the detailed passages into particular harbours. How did you do that?

This would be for example at Buna, where it was necessary to have an approach lane, which involved keeping two marks, which were erected onshore, in line. And if you went down that approach lane you would steer clear of the obstacles at the harbour mouth.

Once you got inside it was a question of clearing a fairly large area as being safe for ships to anchor in. And that would involve running lines of soundings, where you controlled the position of the boat that was doing the echo sounding, and you observed the depth of the water at each spot you traversed over. And you in effect made a contour map of the whole of the sea bed in the whole of the harbour area, which might be four miles by five miles.

Did that also involve assessing the quality of the ground, in terms of its adequacy for holding anchors, or not?

Sure, sure. We took bottom samples, and put them on the charts too.

And what were the differences, in terms of good and bad holding grounds, what were you looking for?

Well we were looking for something that was workable. And if it was bad holding ground, you'd just record the fact that it was mainly coral bottom, and people had to lay out more cable if they needed to.

Right. The other aspect of your work, I think you were saying, was ....

Perhaps I should add to that it was also necessary to run a survey of the actual coastline. And you would actually walk along the coastline, fixing your position every 100 yards or so, and sketching the actual run of the coastline. So that that would be the kind of work that would be involved in a harbour survey.

I see. This was to give an accurate picture of the actual harbour foreshore?

Where you got dry feet if you were walking on the water. (Laughs).

Right.

I think you were saying the third aspect of your work was setting up approach lanes for landing?

Yes. You could take, for example, the landing in Lingayen Gulf where there was a suggestion that the mouth of a certain river might be navigable, and that landing craft with troops on board might be able to go up the river, and land in sheltered water. Well a sounding boat was sent off to have a look at that. And it turned out that the mouth of the river was surrounded by a breaking bar, which was semi-circular, and completely occluded the river mouth. The sounding boat went in, over the bar at its deepest part, sat down briefly on the sand, got picked up by the next wave, and finished up inside the harbour. (Laughs).

Mmm. That's ....

It made it quite clear that that was not a good approach. And in fact the approach used was elsewhere.

(25.00) When you were doing the work for setting up landing lanes if you like, how closely were you liaising with the army? Were they giving certain areas where they had to be getting ashore, and you had to find the most suitable spot there, or what?

The operation order would specify that we would go and have a look at the suitability of a particular beach for landing craft. We would do that job, as we did, for example, at Balikpapan. And our conclusions, our assessment as to whether it was suitable would be relayed to the landing - people operating the landing craft. Via command.

Right.

Well if we could turn, perhaps in more detail to the techniques that I'd assume spread over those different areas in terms of basically assessing positions and depths: what were the key means of accurately assessing specific positions?

When we went into an area, we would set up what we called survey marks, which would be perhaps bamboo tripods, with a vertical bamboo on the top, and a flag on that bamboo tripod, red or black, according to - red, black or white, according to the background. And then we would run a triangulation survey, to fix the relative positions of those marks. So we would know how far each mark was from the other, and their shape in terms of the angles between the lines joining them.

However that wouldn't give us scale, the distance between marks, and that wouldn't give us latitude and longitude. And it wouldn't give us the orientation to true north. So to get the scale we would have to get on the ground somewhere, and measure a distance, and incorporate that distance into our calculations. In order to get orientation we would have to do an astronomical observation to determine where true north was, and what was the true bearing of one of our - the lines joining our marks. And in order to get latitude and longitude we would have to do a star sight at one of our stations, and work out what was the latitude and longitude of that station. So it was a full-blown survey job.

So, having established true north, having established the precise latitude and longitude, you would then work out from your triangulation?

Within that framework of marks it was possible for us to fix our position relative to those marks by taking two horizontal sextant angles. We set these things on a three-armed gadget called a station-pointer. And on our sounding board we would have the relative positions of the marks pricked off. And by juggling the station-pointer so that all of the marks we had observed fitted on the three arms of the station-pointer, we knew that at the centre was where the boat was.

Right. (Laughs). [Break in recording].

Having established specific positions, then the key role, I assume, is to establish depths?

Well you would actually rule on a sounding board lines, parallel lines, two-tenths of an inch apart. And you would navigate your sounding boat to the start of one of those lines, swing onto the bearing of that line, and steam along it, fixing your position every two minutes, and running the echo sounder, and taking a depth every fifteen seconds. And you would steam up and down those lines something like six to eight hours a day. (Laughs).

Right. And I think you were saying that in that fifteen second period you would normally cover about - well, more precisely, 150 feet?

Something of that order.

Well let's turn to your work in the boat. Because this, I understand, is where you spent most of your time, is that correct?

Oh, I did a lot of things, but I spent a lot of time in sounding boats, yes. (Laughs).

Could you describe the *Benalla* sounding boat? As a vessel?

I think she was called the *Hearty*. The names of these boats tended to be historical names, taken from the long history of hydrographic work. She'd be about twenty-six feet long. She had a fore cockpit, where the bowman lived. She had a centre cockpit, which had a Volvo six-cylinder petrol engine. It had a clutch to go ahead, and nothing to go astern. And then you came to the aft cockpit, which housed the echo sounder, the chart table, and right aft, in the stern, the magnetic compass, and a contraption on the rudder, which was like a couple of half buckets, called Kitchener rudder gear. When you wanted to go astern the coxswain had to wind a handle which closed the buckets on the screw, and pulled the boat astern.

Yes, I've seen that. Just a moment.

END TAPE 1, SIDE A.

BEGIN TAPE 1, SIDE B.

Ed Stokes, corvettes, Sir Harold Knight, tape one, side two.

You were saying about this reversing gear, Sir Harold?

Well the Kitchener rudder gear is a kind of a bucket, rather like the buckets that they put out on aeroplanes to slow down jets after they've landed. The thrust of the jet goes into the bucket, and slows the plane down. And it's the same sort of thing with the Kitchener rudder gear.

What was the crew of your survey boat? How many men, and what were their tasks?

It would be a six-man crew. The bowman would be responsible for the general cleanliness and well-being of the boat, and he would look after the rations for the day. And he would keep a lookout if you were sounding in coral water. The stoker would run the engine. He was responsible for fuelling, and oiling the - and the general good condition of the engine. In the cockpit aft you would have the survey recorder, who was operating the echo sounder. He would be concentrating very heavily on that, minute by minute. You would have a guy who was called the second angle, whose job it was to take the second horizontal sextant angle. You would have the surveyor in charge of the boat, who would take the first sextant angle, and generally run the show. And you would have the coxswain, who would steer a compass course, to keep the boat on the sounding line.

I'd assume that you worked with the same men over a significant period?

The crews would change from time to time, but, yes, you got to know your crews very well indeed.

Well could you just tell me about that? How - as a young officer, how close did you get to your own boat crews?

Well I was very inexperienced when I started, and they didn't know much about me, and I didn't know much them. But, over time, I suppose they came to respect the fact that I could turn out the work, and I certainly came to respect the fact that, if they were well-led, well-directed, they could produce very effective support for the operation.

You were saying, I think, that there was quite a growth in your powers of leadership, I think you would say, during this period, but that the beginning was, I think you were saying, somewhat shambolic (laughs). How do you remember that?

Well the survey boat gets away from the main ship at about eight in the - at eight in the morning. And at that time the boat is alongside the gangway, and the ship is ready to go steaming off, and do its own sounding. And in my first few days, when I was getting the boat away, I just hadn't got my act together. And there were bits and pieces that I needed to run up and down the ladder, and send someone off to get. And, by about ten or fifteen minutes past eight the commanding officer on the bridge would be getting quite restive at the fact that I was delaying the ship.

And it wasn't very long before it dawned on me that the way to go was to write little notes to the bowman, and the stoker, and the coxswain, the night before, and make sure that they understood what they were to turn up with in the boat, alongside, at eight o'clock. And from that time onwards I used to tumble down the ladder into the boat at eight o'clock, we would let go, and away we would go, and that was fine. That was one of the many ways in which I learned a little bit about handling people during my time in the navy.

Right, that's most interesting.

The age of the men you generally worked with, Sir Harold: were they mostly young men, or were there also older permanent navy men?

Some of them were young people who had enlisted for the duration, and who were pulled across from their normal seamen's duties to learn a bit about surveying. Some of them were old hands from peacetime days. People like Leading Hand, or Petty Officer, Jack Kidd. Later Chief Petty Officer Jack Kidd, who was a survey recorder from the 1930s, who was a very experienced surveyor.

And I remember Mitchener, the coxswain, who I worked with on a number of occasions. A saintly figure, with a long beard, who steered that boat to perfection. If you gave Mitchener a correction of three degrees to port, you got a correction of three degrees to port, and it worked like a charm, he knew what he was doing.

That's most interesting. The challenges and difficulties of working in a small boat, and perhaps also the corvette itself at times, tides, currents, difficult weather conditions, and so on - what would you recall as the greatest difficulties?

(5.00) Well there weren't difficulties that you didn't overcome. Heavy weather was something that made sounding in a boat physically uncomfortable. You would be bounced around, and you would come back to the ship at the end of the day just bruised, from having been banged against hard things during the course of the day. My main impression of the time was that it was just unremitting hard work, seven days a week, from eight in the morning till five at night in the sounding boat, and then again in the chart room at night from seven till ten, inking in your day's work. It was a very, very heavy grind. But intensely absorbing, and a real sense of making a contribution, because you knew what you were doing was going to be so useful, and of permanent value.

Yes, sure. The tides and currents, tides sweeping in and out, currents flowing through, if you like, did they make it difficult to keep your boat on its particular course? So that you could be specific about its position?

You fixed the position of the boat every two minutes, and you knew exactly where you were at any given moment because you were plotting yourself fix by fix as you went along your line. And if you had a current three knots from port beam one minute, and three knots from the starboard beam the next minute, you corrected for that. And if you wandered a little bit off the line it didn't matter.

No, I think we coped with all of those things. There was of course a need to correct the depth we recorded to low water springs, and some people would be sent off as the tide-pole party on a small desert island, with a tent and some rations, and a tide-pole, and they would have to read the tide-pole every twenty minutes, night and day, for about a week. (Laughs).

Mmm, that's most interesting. (Laughs). Real Robinson Crusoe stuff.

Yes.

And were you ever - were officers involved in tide-pole parties, or were they a group of sailors?

There'd be a leading hand in charge.

Right. The actual development of the charts, what were the key stages in the development of a finished chart?

The sounding board was a piece of softwood about two feet square on which cartridge paper was pasted. And the positions of the beacons, the sounding marks, were pricked onto it with a needle, and circled in red. They were given names, so that you could identify them easily. And then the board would be ruled up with these parallel lines, .2 of an inch apart. And you would steam up and down those lines, and at the end of the day you would ink in the actual depth on the lines in between the fixes you had taken. So that the board would finish up with thousands of small black figures, representing the depth of water, on it at the end of your survey campaign.

The sounding boards, compiled by the ship and by the sounding boats, would then be traced off onto a master linen plan, and that master linen plan would be the summary of all of the data collected by the sounding boats and the sounding ship. It was possible for that master tracing to be reproduced in the field, and used by assault teams if they needed it. Alternatively, if that wasn't needed, or in any case if it was needed, the tracing would be sent down to the hydrographic branch in Sydney, where draughtsmen would convert that master chart - master tracing - into a formal chart. And those charts are still in use.

That must be most satisfying to know that. I'd assume the master tracings were only used immediately in the field if there was great urgency?

Yes, that is correct.

Right. You were obviously operating in quite forward areas. Were there instances, or were there periods when you knew you were operating quite close to Japanese forces?

Oh yes, indeed. We were credited with shooting down one Japanese aircraft in *Warrego*, in Morotai. *Benalla* I think didn't really get into any strife, but we were quite close to Japanese installations on many, many occasions. I suspect that because we didn't seem to be an aggressive force, we were just poking around, doing this and that, they may very well have avoided trouble by leaving us to our own devices.

Of course we had to go ashore in places that might or might not have been enemy occupied to do our observations. Measuring base lines ahead of landing forces along beaches. So we were at hazard. In point of fact I don't think we lost anybody. The only casualty I can remember in the whole of my service was somebody who got his leg broken by a descending Oerlikon high explosive shell, which fortunately lodged in his leg, and did not explode.

Mmm. Lucky man.

What was the level of security information the ship received, *vis-a-vis* Japanese forces, from coast-watchers, or other sources?

Negligible. We just went and did what we had to do, and we didn't quite know where the Japanese were. We had some rumour as to where they might be, but we did not have precise information.

And I'd assume any shore parties, or - and perhaps boat parties, were armed?

(10.00) Well, where we thought there might be Japanese, there'd be a few hand grenades hanging around belts, and one or two Bren guns.

What level of training was there in the accurate, or the effective use of those weapons?

Not much. But if you felt you might have to use them, you made quite sure you knew how. But this was a matter of individual initiative, more than systematic training. (Laughs).

Right. And when you were in areas where there were rumours of - or some feeling of a Japanese presence, how much of your effort was devoted to lookouts, and general observation? Or were you so involved in the survey work that that was impossible?

Well I suppose the best way to answer that is to give an example. There was a landing on the island Morotai. Before the landing it was necessary for us to land on the island, and measure a base line accurately, about 400 yards long, in order to get some scale for our charts. We had a party of three people who were measuring the base line, and one or two of them had hand grenades festooned around their belts. And we had one man with a Bren gun who was walking through the coconut palms, looking around to see if there was anybody there. (Laughs).

Right. Were there lighter incidents during these long, difficult, and hardworking days?

[A pause]. Yes. The ship had an amplifier over which we played the pop songs of the day. The Andrews Sisters, 'Rum and Coca-Cola', and a few - 'Paper Doll'. And of course there was always the joking. Morale was good, and people were quite light-hearted. We had a job to do, we got the job done technically, but we didn't take ourselves too seriously.

There wasn't fishing while you were surveying?

Oh yes. Oh yes. While the ship was sounding there were always a couple of cod lines with lures over the stern. Mitchener, the coxswain of the sounding boat, was expert at juggling the Kitchener rudder gear, his magnetic compass, and hauling in a trevally on a cod line at the same time. (Laughs).

That sounds good. Just a minute. [Break in recording].

You were saying, Sir Harold, that the ship's time on different survey grounds was extremely valuable, and that very little time was wasted. Why was that?

I'm speaking here of time in *Moresby* I'm sorry, time in *Benalla*. *Benalla* had water-tube boilers that became encrusted with calcium deposits after a certain number of hours. And to maintain the efficiency of those boilers it was necessary to die them out, cool them down, and physically for people to go in and clean out those tubes. And we were not permitted to die out boilers north of Cairns during *Benalla*'s early days, because the Japanese presence was such that we needed to have the ship mobile at all times.

So it was 500 hours between boiler cleans. And those 500 hours included time steaming to the survey ground, and time steaming back again. So we had to use the hours that we were on survey ground with the boilers alight very effectively, because the boiler cleans cut out a fair bit of our time.

Right. The daily routine while you were on the survey grounds: obviously a lot of your time was actually spent in the boats, but before that, early in the morning, and late in the afternoon, and the evening, how did the day go? Was there a typical day?

On the survey ground we'd tumble out at about six in the morning. If there was thought to be any threat of enemy action there'd be dawn quarters. You'd have a shower and breakfast, and, as I was explaining, you'd be in your boat by eight. The ship would get underway, and sound, or do whatever chores it had to do.

And the bowman of course would have provided you with lunch, and a billy, and some way of boiling the billy. And you'd stop for morning tea, you'd stop for lunch, you'd stop for afternoon tea. And you'd be away sounding fairly continuously until five at night, when you'd come back to the ship, which by this time would be anchored, somewhere, you would know where.

And your boat would be secured at the boom alongside the ship. And you'd be inboard with your crew. You'd have a shower, you'd have your evening meal. If there was risk of enemy action, you'd have evening quarters, and then you'd be in the chart room, writing on those two-tenths apart pencil lines the depth of water, about every one-tenth of an inch along those lines that you'd traversed during the course of the day. About 9.30 or 10.00 you'd turn in, and ready to repeat the dose next day.

Mmm. That late night work, which was obviously very precise, must have been quite difficult at the end of a long day?

Well there was the sense that you were doing something constructive, something useful. And not many people in the war had that. And one didn't mind the hard work, because it was such engrossing, useful work.

(15.00) Sure. Was there much time for the officers to relax in the ward room, and when you did, what were the pursuits?

Well when you were in Cairns you could get ashore some of the time. If you had an afternoon make-and-mend, which sometimes there was at the end of a survey on the field, it was possible to put the whaler down, and sail her. I remember my embarrassment when I found myself taking a party away in the whaler, and I had no idea how to rig the thing. And I discovered the ship's company had lined the side of the ship, and was watching me try. (Laughter). One of my many embarrassments.

But, yes, there were possibilities for recreation. There was a bottle of beer of course per man per day.

Were excursions in boats particularly common, or not?

No. No. I was a bit unusual wanting to take the whaler away, I was keen on sailing.

Yes, that's always - I've gathered this from the navy, that sailors are somewhat exceptional.

You were saying also, Sir Harold, or telling me about your work as a cable officer, I think this was a duty involving the anchoring of the ship. I think there's an amusing recollection there?

Yes, well this is part of my greenness as a new officer. I was assigned as cable officer, and you've got a sub-lieutenant, up right in the eyes of the ship for'ard. And you've got a petty officer with a hammer, who knocks off the slip to let the cable go. And you've got a stoker who operates the steam winch. And after the anchor has been dropped, which was something we did many, many times, it's the job of the cable officer to lean over the very front of the ship, the very eye, the very peak of the bow, and see which way the cable is extending. If the ship is going backwards, the cable will grow, as they say, straight forward. If the bow is veering to the left, the cable will grow to starboard. If the bow is veering to the right, the cable will grow to port.

But I used to report this faithfully to the bridge, in a loud voice, so that it could be heard by the commanding officer. I was completely nonplussed on one occasion when the cable was completely upright. I didn't quite know how one reported this in the navy, so I lifted up my voice, and yelled, 'Cable hanging vertically, sir'. I didn't quite know why the roar of laughter went up, but somebody afterwards told me that what you said was, 'Cable up and down, sir'. (Laughs).

And there's a - apparently a world of difference.

Was it difficult for the corvette to find good anchorages for evenings and nights, or not? Was there much hunting round for good grounds?

That didn't ever present itself as a major difficulty. There were occasions when we had difficulty finding ground to anchor. Off Lae for example the shore is very steep too, it goes down to a hundred fathoms in a very short distance, and we used to find Lae a very awkward place to anchor.

How did you resolve that?

Well we just tried and tried again until we found somewhere.

Right. The technology that you were using in your survey work, were there any significant changes during the war, or not?

No. The echo sounding machine was the same right through from the start to finish. It put an electrical impulse on wet iodine-soaked paper, and the electrical impulse meant that the iodine-soaked paper showed a black mark. And that was an English machine. And the same machine was used throughout the war.

The theodolites were good Swiss instruments, which I suppose were in stock in the hydrographic branch before the war. And the sextants were British made, and they were quite standard stuff. And the technology did not develop during the wartime years.

Right. The *Benalla*, as you remember her, Sir Harold, compared with the two other ships you served on, were there any significant differences, or not?

Moresby was a very old ship, and had a good deal of rust, and her fittings were elderly, and some of them were obsolete, and had been replaced, but not removed, so she was a pretty clumsy old bucket. *Warrego* was a training sloop with a couple of very loud-geared turbine - economy steam turbines, and she was quite a comfortable ship, quite comparable with the corvettes.

Right. And were the relationships, or the attitudes of the crews of those ships different to any significant extent, or not?

A good deal hinges around two key people. One is the buffer, who's the chief petty officer in charge of the day work of the hands, and the other is the first lieutenant. If those two are oppressive, harsh types, the ship is not a happy ship. If those two understand how to get along with men, it's a happy ship. And I've had both experiences, mostly happy ships.

(20.00) Right. I think you were saying that there were periods of leave, between your postings to the *Warrego*, and the other ship. Did you manage to get home to see your family then, or not?

Yes. I got home to Melbourne on leave perhaps two or three times during my three year stint in the navy, for fairly brief periods.

I think you were saying that towards the end of your work - [break in recording] - at the end of your time on the *Warrego*, and I think that by this time you'd been three years surveying, is that correct?

Yes.

That you were fairly worn down by it all. How do you remember that?

Well they used to speak of people being 'troppo'. You'd get skin problems that wouldn't go away. And you'd get mild obsessions. I had the obsession that my left eye was strengthening, and my right eye was weakening. So I wore a patch on my left eye, so that I would strengthen my right eye. People just get mildly eccentric, and troppo. And of course I had lost weight, and I was pretty skinny. And I think it was probably Captain George who concluded that I needed a period down south, so he assigned me to the Moreton Bay Survey, which was a cushy sort of a job, for the last four or five months of my service.

The point about your eye, was that to do with eye strain from using instruments?

I think it was mainly subjective eccentricity. But, yes, that was the way it presented itself to me.

Right. Were you sorry to leave your last ship, or not?

I enjoyed my whole naval time enormously, because it was absorbing technically, and constructive in terms of contribution. And at the end of the time the navy, Carloom [?], the commander in charge of hydrographic branch, asked if I would like to stay on permanently, but I concluded that it was a chapter that I should close, and that I should go on with what I was doing before the war. So, with some reluctance, but with quite a clear sense that I was doing the right thing, I left the navy and went back to banking.

Right. Well I was just going to ask you first about some - we might just step back to the Moreton Bay period. But also you had been awarded the DSC. When was that awarded, and why?

I think that was during my time in *Warrego*. I'd have to look up dates, but I don't think I have them. But the award was for, I think, hydrographic surveying duties in hazardous areas, or some such thing.

How many DSCs, do you know, were awarded for surveying?

I can't answer that.

Right.

The work at Moreton Bay was obviously far more comfortable than your - your shipboard work. But I think you were still putting off, five days at a time, in a small boat?

Well I had a cabin in HMAS *Moreton* which was an army huts, some defence services huts in the Botanical Gardens in Brisbane. And I had weekends, Saturdays and Sundays, there. Went downriver Monday morning, and came back on Friday nights, and spent the week puddling around Moreton Bay, which is a very pleasant stretch of water. And I did some constructive survey work there, but I didn't have quite the same sense of contribution as I had in the forward areas, fixing those lanes, and landing areas. (Laughs).

Right. And during the five days off in the little boat, were you sleeping aboard her with your crew?

Yes, it was a smallish boat, what you might call an oversized sounding boat, reasonably well fixed up.

Right. You were saying, Sir Harold, I think, that you have a particular feeling about the Australian corvettes, as an example of Australian industrial skill, perhaps.

I think what I was saying was that, if you think about the corvette programme, and the people who manned them, and the ships themselves, a major defence resource in Australia, perhaps the most important defence resource we've got, is the industrial structure of Australia, which can produce a programme like the Australian minesweeper, the corvette programme, so quickly, and so effectively. They were very apt ships for their purposes.

And the people who manned them were in the Australian population, and just as I adapted into hydrographic surveying at the drop of a hat, with some embarrassments, and some difficulties, but nevertheless got into it, so so many people adapted into running those ships. And we do have an enormous defence capacity in our well-educated population, and our strong industrial structure. And I think that is probably rather more important than the bells and whistles and people we have during peacetime in the defence forces. Both are necessary, but we should not overlook the enormous resource we have in the population, and the industrial structure, for defence purposes.

Right. I think you were stationed at Brisbane when the war finally ended, how do you remember that?

(25.00) Well I think VJ Day was widely expected. It came of course with the A bomb, and that was something of a shock, and a great deal of sadness. But we were aware of the Japanese POWs, and we felt that the quick ending was, on balance, a good thing.

Of course demobilisation came a little slowly, there was a points system. If you had a wife and ten kids, you got demobbed really quickly. If you were a bachelor, as I was, it might be a bit slower. But I was working in Brisbane at the time, and I took my turn, and demobbed in an orderly way, in time to start university work the following year.

Looking back on it all, what was the most satisfying memory of your period in the navy, Sir Harold?

The whole time of making charts that contributed to the MacArthur landings, was a very, very satisfying, and rewarding time. And one did what one had to do in order to make the contribution to that process. It was really three years of intensely satisfying work. One was very fortunate to have had such an opportunity.

There must have been a great pleasure, I'd imagine, when you finally saw published charts, with your own work on them?

Yes. Part of the satisfaction was that the work flowed through to be permanently used. Not only to be useful in terms of the military needs, but useful in terms of something which was a permanent contribution to human knowledge.

Just finally, Sir Harold, is there anything you feel you would like to add to this record of your period in the navy as a survey officer?

I think we've covered the ground fairly well. I don't think I have any *obiter dicta*. I'll leave it open-ended, always glad to have people come back, and try prodding my imperfect memory. (Laughs).

Right. Well on behalf of the War Memorial for making this time available, thank you.

END TAPE 1, SIDE B.

END OF INTERVIEW.