

OPEN FOUNDATION COURSE

SUBJECT: AUSTRALIAN HISTORY

LECTURER: MARGARET HENRY

RESEARCH PAPER

TOPIC: THE PORT OF NEWCASTLE

DUE DATE: 11th August, 1988.

NAME: PAMELA WALTERS

CLASS: Tuesday, 1 p.m. to 3 p.m.

The view which greets one on entering Newcastle by sea is golden beaches and craggy cliffs to the south, and to the north the beauty of Stockton Bight with golden sands as far as the eye can see to perhaps Morna Point some eighteen miles away. However, straight ahead passing Nobby's signal station and through the breakers is the entrance to Newcastle Harbour, the third most important port in the Commonwealth of Australia, and one of the few in the world able to handle coal ships the size of the Orinoco.

In 1981, and no doubt the figure has increased by now, over 870 vessels visited the Port of Newcastle every year and approximately 20 million tonnes of cargo was handled annually. The Port is one of Australia's leading bulk cargo and export ports, with the major export being coal, whilst raw materials used in the manufacture of steel make up the largest import item. Other items of export are wheat and wool. The Port of Newcastle is the economic and trade centre for the Hunter Valley¹ and for much of the northern and north western areas of New South Wales.

Newcastle Harbour which is located at the mouth of the Hunter River is faced with a major problem of siltation, as is any port located at the mouth of a river. Research by Professor C. Renwick, Director of Research of the Hunter Valley Research Foundation has shown that in these cases:

The stream flows to the sea, bringing organic and minerals substances as it comes, and intruding salt water, pushed and pulled by the tides, helps to cause deposition and to create bars and banks of sand and mud.²

Newcastle is a classic example of this. Newcastle Harbour could be said to have been man made, having been formed by linking Nobby's Island to the shore and by reclaiming the marshy areas along the mouth of the stream. Silting due to floods in the Maitland area in 1949 and 1955 however, caused excessive silting. In fact any floods in the Maitland area created siltation and the question of flood mitigation and erosion prevention was raised in 1951 by the then Newcastle Lord Mayor, Alderman Purdue.³ Another problem was a rock ledge at the entrance to the Harbour, which restricted the depth at the entrance to 25½ feet at low tide. It prevented the silt being washed out to sea. In 1954 Australia's most powerful marine rockbreaker named the "J.T. Paul" was used to "whittle away" Newcastle's rock bar. "

It was not uncommon to see a tug, ferry or laden ship sitting on the Harbour bottom at low tide. In fact, ships had often by-passed Newcastle and had gone to Sydney to discharge Newcastle bound goods which then had to be sent to Newcastle by road. A \$70 million deepening programme commenced in November 1977 which when completed in February 1983, increased the depth of Newcastle Harbour to 15.2 metres. More than 9.5 million cubic metres of soft mud and clay and 2.5 million cubic metres of rock had been removed and taken out to sea.⁴ "Having made the Harbour, man has to keep it free for navigation."⁵

The responsibility for the Harbour was vested in The Department of Public Works but is now in The Maritime Services Board of New South Wales. One does not often think further than that, but the Department was made up of many people performing many functions; one such person was Sidney Alexander Ayerst. His occupation with the Department was that of a diver

- 1 The Port of Newcastle, issued by The Maritime Services Board, March 1981.
- 2 Prof. C. Renwick, "Isotopes Research in Newcastle Harbour" Port of Sydney, 1957 Vol. 6 No. 1, pp. 138-141.
- 3 The Newcastle Sun, 18th April, 1951.
- 4 The Newcastle Herald, 19th January, 1983.
- 5 Prof. C. Renwick, Port of Sydney

and when one considers the many works and programmes undertaken by the Department around the Harbour, you realize the importance of such people in performing seemingly incidental jobs, but very important for the maintenance and continuous functioning of many State enterprises.

Diving, as was done by Sid Ayerst who joined the Public Works Department in about 1939/40, was not as one might imagine - swimming effortlessly around in the clear blue waters of Newcastle Harbour. In fact it was just the opposite; murky, slimy, and completely dark, the sun being unable to penetrate the waters due to siltation and constant dredging to allow ships to enter the port. Added to this was the cumbersome suit and unwieldy lengths of air hose and lifeline a diver must drag with him, often becoming entangled around piles and bottoms of boats. The aqualung originally designed in France during World War II by the French naval officer and underwater explorer Jacques-Yves Cousteau brought about a drastic change in diving equipment. However, this did not reach Australia until after the war. Sid Ayerst was the first to use such equipment in Newcastle, having purchased it from The Porpoise Company in Melbourne. However, due to regulations by the Department of Labour and Industry, he was unable to use this in his service with the Department of Public Works until about the 1970s.

Dredging has been a continuous task in Newcastle Harbour especially near the various wharves to allow ships to unload or take on cargo; the basin near B.H.P. was one such place. It was the diver's job to inspect these areas to make sure that they had reached the required depths. In some cases, the diver would find himself up to his armpits in mud. If rock had been struck, the diver would have to lay charges and blow the rock up. As mentioned previously, the rock breaker, the J.T. Paul was used to break up the rock ledge at the entrance to the Harbour. However, this was not as successful as it appeared to be; it merely drove holes down into the rock and it was up to the diver to place charges in such holes and blow the rocks up. Not many people would even spare a thought as to how cables carrying electricity and pipelines carrying water reached across the Harbour; or how the wooden ferry wharves have managed to remain intact for so long. This is due to people like Sid Ayerst whose functions were to lay such cables and pipelines, and to inspect such piles which were susceptible to borers in the water and repair or replace as need be.

In May 1941, the N.S.W. State Government decided to re-establish shipbuilding in New South Wales as a State enterprise. It was decided to utilise the remaining facilities from Walsh Island, the previous Dockyard which had ceased activity in 1933. Construction was commenced in January 1942 and completed in 1946 with the Dockyard ideally situated on the mainland peninsula known as Dyke End. To coincide with this, the Government also decided to move the Floating Dock in April 1943, to a mainland site at Carrington. The Dockyard had not been established solely to meet war needs but was intended to extend far beyond that into peacetime; being able to manufacture any type of steel structure or engineering plant. Again, the need for people like Sid Ayerst, who was involved in the underwater work required for the slipways of the Dockyard.

Another enterprise undertaken by the Department jointly with The Council of the City of Newcastle, was the laying of piles and the hanging of the sharkproof net at the Wave Trap, Stockton in 1950; the pool being officially opened on the 3rd February, 1951. To make sure that this net was kept in good repair, it was periodically checked by Sid Ayerst in his capacity as a diver.

The first Section of Zaara Street Power Station was installed in

1922. The remainder of the plant came into operation in 1942 and 1946, supplying Newcastle, Maitland and Singleton with power. Again, the services of the littleman were needed. From the Power Station to the Harbour were pipes; one pumping cool water into the Power Station to cool the motors down, and the other pumping out the water. It was Sid Ayerst's duty to periodically clear shells, barnacles, and debris from the the screens and the inside of the pipes, even to the extent of crawling up the pipes for some thirty or forty feet. This may seem insignificant, but for the efficient and continuous running of the power station, this was a vital requirement. As late as 1972 the Electricity Commission of N.S.W. still regarded Zaara Street "as having useful generating capacity, particularly to meet peak load requirements."⁶ However, the end of the line came in September, 1977 when demolition work began. Under the Newcastle East development plan approved in June 1978, by Newcastle City Council, the land has been used for open-space parkland, with a small area zoned residential.

The Port of Newcastle, to remain one of the most important in Australia, needs the "little people" who perform varying and often dangerous, irksome and vitally necessary functions to maintain, build, clear and otherwise; and one such person who contributed to this was Sidney Alexander Ayerst, my uncle!

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6 The Newcastle Sun, 22nd February, 1972.

BIBLIOGRAPHY

The State Dockyard, "Its Wartime Establishment and Production - January 1942 - December, 1945", Government Printer, Sydney, 1946.

Funk & Wagnalls New Encyclopedia, New York, Volume 8.

JOURNALS:

Port of Sydney, "Isotopes Research in Newcastle Harbour", Vol. 6 No. 1, Newcastle, 1957.

Port of Sydney, "The Port of Newcastle", Vol. 7 No. 4, Newcastle, September, 1960.

Australian Coal, Shipping, Steel and THE HARBOUR, "Dredging of Newcastle Harbour", January 1, 1957.

Ports of N.S.W., "It is amazing what you can get out of Newcastle Harbour if you dig deep Enough!", Vol. 4. No. 9, June 1984.

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1988

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Signed *S. Ayerst*

Date *12th July 1988*

Interviewer Pamela WALTERS *P. Walters*

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LECTURER: MARGARET HENRY

SUMMARY and TRANSCRIPT of INTERVIEW

by

PAMELA WALTERS

of

SIDNEY ALEXANDER AYERST

Made: 30th May, 1988

**SUMMARY OF INTERVIEW by PAMELA WALTERS
of SIDNEY ALEXANDER AYERST
MADE: Monday, 30th May, 1988**

SIDNEY ALEXANDER AYERST was employed by the Department of Public Works, Newcastle, from 1939/40 to 1987 as a DIVER. He was also a diver in the Naval Volunteer Patrol during the war years. The equipment used was quite cumbersome and complex until the introduction of the aqualung. His work for the Department involved him in such projects as the building of the slipways for the State Dockyard, the removal of the rock ledge at the entrance to Newcastle Harbour, the dredging and deepening of the Harbour, and many more duties.

You could say that Sid's interest in diving was born and bred in him. His father, grand-father, and great-grandfather had been divers; in fact as far back as they could trace, there had always been divers in their family. At the young age of 15 years, anxious to try his skills (but with a father reluctant to lend his gear), Sid devised his own diving helmet. Working on the hypothesis that you could place a bucket over your head and go under water (providing you keep your head up straight), an airlock forms and prevents the water from coming right up, Sid's helmet was constructed from a four gallon oil drum, his mother's garden hose and his father's motorcar pump. His first job was to recover false teeth belonging to a Captain of an American ship!

Sid's career with the Department of Public Works, Newcastle, began at the age of nineteen or twenty, just prior to the war. When war broke out, the Department would not release him, so Sid joined the Naval Volunteer Patrol where he had the task of cutting free a mine caught around the propeller of a British Ship, the "Rembrandt". During the war, the aqualung had been designed but this type of equipment did not reach Australia for some years after the war. In fact, Sid was the first to use such equipment in Newcastle, but only privately, as the Department could not allow its use due to regulations of the Department of Labour and Industry. The Public Works Department finally allowed its use in the 1970s, even to the extent of paying Sid a hiring fee for his own equipment. Prior to this, the standard equipment used was the deep sea rig consisting of watertight canvas and rubber suit, and a copper corselet onto which the helmet was screwed. Air was pumped manually until the introduction of compressors.

You could say that Newcastle Harbour was Sid's workshop; a murky dark one at that! Newcastle Harbour needs constant attention, in that, it suffers from siltation; a predicament which is aggravated by floods from the Maitland area. Dredges are constantly dredging the Harbour, and to make certain that the correct depths are reached for ships entering the Harbour, the services of a diver were needed to check these depths. Quite often rock ledges would hinder this work, and Sid would lay charges to blow them up. With the re-establishment of the State Dockyard at Dyke End, Sid was engaged to "pot the piles" underwater which entailed blowing holes in the rock and placing the piles for the slipways. Other jobs were checking and replacing rotten or borer riddled piles on ferry and cargo wharves; pouring concrete ramps (underwater) for the Hexham Ferry; clearing debris and barnacles from screens surrounding the inlet and outlet cooling pipes leading to the motors of the Zaara Street Power Station and Wangi Power House; laying piles and hanging the sharkproof net to the Wave Trap at Stockton; and in fact he was quite often sent away to flood areas anywhere from the Victorian border to the Queensland border and out to Lord Howe Island where they would have to inspect piles in the jetty and rebuild it if necessary.

Sid appears to have been a "jack-of-all-trades" but obviously a very necessary part of the Public Works Department, in keeping our Harbour running efficiently.

**TRANSCRIPT OF INTERVIEW by PAMELA WALTERS
of SIDNEY ALEXANDER AYERST**

I'm Pamela Walters. Today which is Monday the 30th May, 1988, I am interviewing my Uncle, Mr. Sidney Alexander Ayerst who was employed by the Department of Public Works, Newcastle, from 1939/40 to 1987 as a diver. He was also a diver in the Naval Volunteer Patrol during the war years. At this stage I would like to emphasise the point that this was the time before the introduction of the aqualung and the equipment used by my Uncle was quite cumbersome and complex. My Uncle was involved in such projects by the Department, as the building of the slipways for the State Dockyard and in the dredging and deepening of the Newcastle Harbour.

Uncle Sid, what was the incentive which made you want to become a diver?

Dad was a diver, and grandfather and great-grandfather. As far back as we can find out, there were always divers in our family.

What age did you realize you wanted to become a diver?

Well, I suppose right from when I was born really, but at the age of 15, I started diving with a home-made diving helmet which consisted of a four gallon oil drum, mum's garden hose and dad's motorcar pump.

Didn't this equipment have to be watertight, or, how did this work?

Well, it works that, similar to placing a bucket over your head and then just going under the water. Providing you stand up straight, there's an airlock forms around the bottom of the bucket and stops the water from coming in but if you bend over, the airlock breaks and the water rushes in.

Can you remember the first job you ever did?

Yes. Using my kerosene helmet because dad wouldn't let me use his diving gear, I went down under Lee Wharf to recover false teeth belonging to a captain of an American ship.

When did you begin your employment with the Department of Public Works - what age?

Around about 19 or 20 I started with the Public Works Department.

So this would have been when the war broke out would it?

Yes just prior to the war. I think about twelve months before the war broke out.

What happened when the war broke out?

I wanted to join the Navy as a diver but the Department wouldn't release me because I was considered to be doing special work for them for which they couldn't get anybody else to replace. So they wouldn't release me and I had to continue with the Public Works; but during that time, I joined the

Volunteer Naval Patrol as their diver. I carried on a bit with them.

Did you get many call-ups to do anything?

Not much, it was actually - I did inspect bottoms of boats and things like that and recovered things they dropped over the side - but once I was called out when a ship came into the Newcastle Harbour, there was a British Ship the "Rembrandt" and she came in and she had a mine caught around her propeller and I had to release the mine. I went down and cut the chain. Using oxy gear, we cut the chain and let the mine drift to the top.

What were some of the projects that you did for the Department of Public Works - you were involved in the slipways you were saying. Was this when it was originally built?

Yes when the Dockyard first started, we built the slipways - all the underwater work we carried on. A lot of the wharf around the dockyard was what they called potted piles. Because of the rocky bottom, they couldn't drive the piles in and we had to go down and drill holes and blow holes into the rocks so that we could stand the piles up and you would pot the piles into the hole and that's how they get the name of "potted piles".

Other work was on dredges where they were dredging. I had to go down and inspect the areas that they dredged to see that they had taken it down far enough, or down to where they had to go - all that type of thing. Blowing up - we used to blow up rocks - blow up where we struck a bit of hard stuff - we would drill some holes in it and blow it out.

Other jobs were recovering articles lost over the side of ships, clearing the front of wharves, inspection of ships - anything they had done on top, we did underneath the water.

What was your equipment like? You said before it was cumbersome; you had a suit with a helmet didn't you?

Yes, that was the standard diving deep sea rig - what they call a deep sea rig - hard hat helmet. Then there was a suit made of rubber and canvas, a corselet - a big copper corselet used to fasten into the top of that which the helmet was screwed onto, and with that we had - depending on your depth of water - up to 90 feet of water you had 45 lbs on your chest, 45 lbs on your back - if you went over 90 feet of water you had 90 lbs on your chest and 90 on your back - and on your feet in shallow water (the 90 foot mark) you had 16 lb in each boot and over the 90 foot mark you had 32 lb in each boot.

And this helmet and suit was actually watertight though?

Oh yes, yes. The suit, you went down through the neck of the suit and then you poked your arms through and on the cuffs of the suit (they had big rubber cuffs) and then on top of that you used to wear big rubber rings around there to make it watertight around your wrists so that no water got in, unless you got a puncture!

What about the helmet - did it weigh a lot, was it heavy?

The helmet, the helmet and corselet together weighed 85 lbs.

And then you had the big hose leading from that up - did you have trouble with the hoses getting caught in anything?

Oh yes, they used to get fouled round piles and on the bottoms of boats and things like that while you were working but that didn't worry you any.

What about the air getting down - was this manually pumped by men on the surface?

First of all it was. We used to have a hand-worked pump - two men on the pump on the handle, they would wind it round and force the air down to you, and afterwards they got on to compressors; they put compressors on the job then, or they used to give me a filter - I had a filter and anywhere there was compressed air laid on, we used to just tap into the main with our hose and our filter and I used to work off that.

Could you have any breakdowns with the compressors or anything like that, and what happened then?

Well we used to have a receiver tank on the airline, so that there was actually a 100 lbs per square inch of air in the tank. In the tank that I had, I'd have about three hours of air. If the compressor broke down, I still had three hours of air in the tank and as soon as it broke down, they used to give me the signal to come up.

When it was manually done, did they have to sort of work to a set system or could they get too much air down to you or not enough?

Oh yes, you could get too much and you could get not enough.

And what happened if you did?

Well, if you didn't get enough you soon gave the signal to give you some more, but if they gave you too much, they used to fill your suit up with air and you would blow to the top like a big balloon and this became dangerous if you were working under a boat, because if you blew up under the boat and you're stuck on the bottom of the boat, they had to send and get another diver to get you out.

You said that you were involved with the deepening and the dredging of the harbour. Was this still with that same equipment?

Yes, still the our big gear but just towards the end of this they brought in then ... I used the the first aqualung that was ever in Newcastle Harbour. I bought it from the Porpoise Company in Melbourne, and I was using that privately but the Department wouldn't allow you to use it on the job because the Department of Labour and Industry - you had to pass all the rules and regulations with them and they wouldn't consider these things safe. Then later on they changed their mind and they did consider it safe, so the Department used to hire my gear and I used to work and they hired it, and

everytime I went out, they would pay me a hire charge for the gear.

With the old equipment though, wouldn't your vision be limited with this huge helmet on? You only had a sort of glass panel at the front didn't you?

Yes, but it wouldn't matter if you had no panels in the front or the sides, because Newcastle Harbour is pitch dark. When you work in Newcastle Harbour (the glass in your helmet, in the old helmets, was a half inch thick) and you'd put your hand on one side and your nose on the other, and you couldn't see your hand - that's how dark it was. But it doesn't matter whether you are in regulation gear or scuba gear, you can't see in Newcastle Harbour, it's pitch dark!

And is it pretty slimy and murky?

Yes, the whole of the harbour ... well there is odd spots in the Harbour where you have got sand and gravelly bottom - that's down around about the Pilot Station you've got sand but anywhere else in the Newcastle Harbour, it's all mud. Starting at Lee Wharf, you'd sink to about your hips; and then over along the silo wharf, you'd go down to about your chest; and then up in front of the B.H.P. where it was continually dredged up there to allow the ships to get in and out of their basin up there, if you stood up there, you would go straight down over your helmet.

How would you get out?

Well, to get out they would have to pull you out with a crane. It was alright going down to your armpits in the mud, you could get out yourself simply by putting your finger on the valve - on the standard suits, the old hard hat gear, there's a valve and a little spindle protruding from it and you used to put your finger on that and you could fill your suit up or let the air out whichever you wanted - and if you got down to your armpits you could fill your suit up with air and let it go and you'd pop out of the mud a bit and that's how you used to blow out of the mud, but if the mud got over your shoulders, you had no chance at all of blowing the mud away so you used to have to - of course with the big gear on, you've got a life line on, that's a rope tied around you - they used to tie that onto the hook on the crane and pull you out.

What other jobs can you remember doing for the Department?

Well, blowing up stuff across the harbour, out on the bar, where the entrance to the bar is. Laying water mains across and gas mains, electric cables.

Into Newcastle?

Into Newcastle yes.

The main ones into the city and all that?

Yes, wherever they crossed the river, they were always laid by divers. The idea is, they put a dredge down onto the job and he dredges a channel across and gets a little narrow track across - you'd drop the cable or the pipeline in it - the diver has to go down and place it all in and in the case of a

pipeline, the diver has got to go down and bolt all the pipes together as they go across the harbour and then when he gets it all completed and tested, they go back and fill it in then, so that its all buried into the bottom of the river. This is to offset the chance of a ship's anchor hooking it up when they've dropped anchor anywhere near it.

With the Harbour itself - it was getting really shallow was it and the boats couldn't get in, and all this sort of thing?

After a flood - everytime we have a flood up around Maitland way, we get all of Maitland down into Newcastle and they've got to go and dredge it all out because it fills up all the channels.

They still do that now though don't they?

Yes, everytime there's a flood!

Did your position with the Department ever take you out of Newcastle?

Yes, my position with the Department covered the area from the Victorian border to the Queensland border and out to Lord Howe Island. Lord Howe Island actually comes under Newcastle Public Works area. We used to go out there and inspect all the piles in the jetty and rebuild it when necessary. Then we used to travel up and down the coast anywhere, inland, where there were floods. They sent me away for three days one time, down to the floods in Jugiong down near the Victorian border and I got back four months later! The pipeline down there was - instead of being 10 feet above the water - it was 32 feet under water when we got there, and to fix this - on top of the pipe which was 3 feet in diameter - there was an inspection plate with 72 bolts holding it on and I had to unbolt all the bolts and lift the plate which was three and a half hundred weight (I didn't lift it, I slid it off the side of the pipe) then I bolted a wire screen over the top so they could pump the water through - because the water supply there was supplied to twenty-six towns including hospitals and everything all around the Cootamundra area and we had to keep the pumps going; so for months then, I used to just sit there and every twenty minutes go down and clean the rubbish off the plate that was coming down with the flood.

Which gear did you wear?

I used the big gear there because with the flood running so hard - the river running so hard - I used to put the 90 lb weights on - 90 lb on my chest, 90 lb on my back and then on top of those I had the two 45s - 45 on my back, 45 on my chest; I had my 32 lb boots on and I used to tie two fish plates off the railway on each leg. That was to hold me down, and then I had a linesman belt so that when I got down onto the job, I used to put the belt around the pipe and strap myself to the job, so the tide wouldn't carry me - river wouldn't carry me away. After working there for quite a while, we'd notice that the water in the river wasn't dropping any; it kept the same level all the time and then we found out that everytime it looked like dropping, they used to let the water go up at the weir and that would fill the river up down where we were. So we worked there for a few weeks like that until we found out what was happening.

Getting back to the slipways in Newcastle, how long did your particular job take - in the underwater part of it?

Well the actual construction of the slip would take anywhere from twelve to eighteen months, by the time you drove all the piles in which used to be done by a big floating punt, then we had to go down and cut them off at the right level, then place the ground rods - what they call the grounds on, bolt it all together - you would be there from twelve to eighteen months. Then every so often we used to have to go back and inspect the work and in particular, one slip which we used to call No. 1 Slip at the State Dockyard, every nine months it would be eaten out by the cobra in the water - the Port Jackson grub they used to call it - the borers they would get in and eat all the wood out and we would have to go back and replace all the headstocks and ground logs ready to launch the next ship, and that work used to take us approximately three to four months to replace all the headstocks and so forth on her.

So every time another boat came in, you would have to go back and inspect it again?

Yes, when it was ready to be launched again, we would have to go back and inspect it and probably rebuild it all again so that they could launch the boat. After you rebuilt the slip by putting the headstocks and ground logs and so forth on it, when they were ready to launch the ship, you had to put the launching rails on; this was the big timbers that the ship slides down and then after the ship came down, you would have to go back and take all those launching rails off because if you left them there, they would all be eaten out.

So even to this day they are still getting eaten and you've still got to replace them?

Yes that's right.

What other jobs did they do around Newcastle, the Department?

The old Zaara Street Power House when it was in action up the top of town, down on the waterfront there was a big pipe coming out into the harbour, where they used to pump the water - they had one pumping the water in and one pumping the water out - the water used to go up in to the Power House, cool all the motors down, just like a radiator in a motor car, and after it circulated through all the pumps, it would come back out again back into the harbour again, discharging into the harbour; and this thing used to block up with all oysters and all rubbish and stuff that was in the harbour. We had a screen built around it. We used to clean all the screen off and then we had to get inside, probably crawl thirty or forty feet up the pipe cleaning out the entrance to the pipe, all of the rubbish out of it; this was to keep the motors cool up in the old Zaara Street Power House.

Did you do this very often?

Well, it was actually every three years we used to have to go back and do the whole thing - the grills and the end of the pipe but on occasions with extra rubbish coming down the river, it got blocked up and we used to have to go

back periodically - when it got blocked up, they would call us back to clean it out. This was also done out at the Wangi Power House, only out there, all their screens were inside the power house and the water used to come through in underground tunnels to the screens and these screens used to block up with barnacles, and mussels and shells and stuff would come through.

You had to go through these tunnels?

We used to have to go through these tunnels.

Which gear did you have at this stage?

The big gear.

So you could still get through with all this gear?

Oh yes, the tunnels were about - approximately nine feet high and ten feet wide sort of thing. They were quite big the tunnels. One time the screen blocked up down there and they sent us down to clear it and they gave me a bucket on the end of a rope so that I could bail the shells out of the hole where the screen had to go down, and when I went down and had a look at it, I came up and I said "well that's hopeless" I said "with a bucket". I said, "we'll have to get an airlift". The Engineer on the job, he'd apparently never heard of an airlift so we sent in and we picked up our big airlift from the depot. When we got it down there, I heard him say to another Engineer "I can't see how this thing is going to work - there's no moving parts in it"; because an airlift is just like a length of pipe and a foot from the bottom of it, there's a hose connecting up an air compressor and when the air blows in, you take this down to the bottom - its thirty foot long sort of thing - you would turn the air on and with the suction of the air coming into the pipe, it used to suck all the mud out and blow it all out the other end of the pipe; and I had this thing going down there and when I went down with it, they put a chap there with a wheelbarrow and a shovel to take the shell away as I pumped it out and I was only down there ten minutes and my mate rang me up - we used to have the telephone on in the big gear - and my mate rang me up and told me to come up. He said "I don't think this chaps going to keep this shell away from up here" and when I got up on top and had a look, the shell was all over the - oh it was everywhere and they finished up with a five ton truck and a front-end loader taking it away. We shifted about forty ton out altogether.

Anything to do with the ferries and the ramps to the ferries in Newcastle?

Well the ramps in Newcastle, they were wooden block there - we used to go down and maintain those, replace all the broken piles and broken timber, but the old ferry, the old vehicular ferries up at Hexham where they used to go across there, the front ramps of the ferries used to come in on a big concrete ramp there and I used to have to go up every now and again and would check these things and we would break it up with a jack hammer - break it all up and they'd pour the concrete back and I used to have to spread the concrete under water. This is quite easily done, providing you don't move it too fast. If you move it fast, you wash all the cement out of it but if it just comes down as a trickle - what we used to do, we used to put a pipe down, right down onto the bottom, sit it on the bottom, and then they used to

pour the concrete into the top of the pipe and then I'd slowly lift the pipe off the bottom. This used to let the cement ooze out on the bottom and I used to just walk around with it and put it all over the place down the bottom and that's how we used to lay the ramps for the old ferry up there.

What were some of the dangers that the divers could face - anything like shelves in the bottom of the harbour or things like that?

Well you had to be careful because if you dropped or descended too quick and you left your air behind - what the old divers used to call "leaving your air behind" - you would get a 'squeeze'. Now if you got a squeeze, well you wouldn't be here talking about it now! because, if you got the squeeze, the diver's body was compressed into the helmet, all except your feet and they wouldn't go into the helmet because the boots wouldn't allow it, they wouldn't fit up the corselet; but we had a chap on the Captain Cook graving dock in Sydney, he was working on there and the valve on the back of his helmet broke which is the same effect as having a squeeze, because it let all the air back out of his suit - instead of having the air in his suit to keep the water pressure off him, when his valve broke, all the air discharged back up the pipe and his whole body was squeezed into a diving helmet. When they got him up to the top - we had an old ex-English Navy diver working with us on top there and he apparently had had this trouble before - and they were all deciding what they were going to do and everything else, and one chap said "well the only thing we can do is to just take the whole lot away and bury it as it is sort of thing, you know" and the old chap there, he said "well what about his body" and they said "well what about his body?" and he took the air hose off the back of the helmet and put it into a drum and turned the air on again and pushed all the flesh back out. So that's what happens with a squeeze. The bends, that's quite different. That's when you work down in pressure and come up too quick and that leaves a bubble. A bubble forms in the vein and it travels around your body until it gets back to your heart or your brain whichever. Sometimes it's fatal but, if you get the diver quick enough - if you got him working where it happens, where he gets the bends - you just put him back in the suit and throw him over the side again and send another diver down to bring him up slow. The idea is like the slower, that releases the air out of your bloodstream - that's the thing but you have got to be very careful you don't come up too quick and that's the same thing with aqualungs and all this. This is where a lot of people think that you just jump over the side and dive down the bottom, swim around for an hour and then shoot to the top. Well if you shoot to the top, you won't be telling too many people about it.

Another job we did in Newcastle Harbour was on the wavetrap at Stockton. The Department constructed a shark net - a sharkproof net - which consisted of steel rings linked together and right across, approximately about 500 feet of it and we used to have to go out and inspect it periodically and make sure all the links were all joined up and no holes torn in it. I don't know whether it was ever successful, but we never ever heard of anyone getting taken there anyhow!

Did you ever have any encounters with sharks?

Oh they'd come and have a look at you but as I say, in Newcastle Harbour, you could be piggybacking them around the Harbour! but in clear water, I had I

suppose, a 15 foot one eighteen inches away having a look at me, but when your in the big suit - the standard suites - where I said your cuff finishes on your wrist, you lift the cuff up and it lets the air out and the rush of bubbles frightens them away. We never ever worried about them. The diver doesn't worry about them but where the diver doesn't, the scuba diver would want to because when you are down there in one of those black skin suits, you look like a seal and a seal is a shark's favourite tucker!

Okay, thanks very much for all that information.

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