The Institution of Engineers, Australia

Engineering Heritage Australia

National Engineering Oral History Program

INTERVIEW TRANSCRIPT

Interviewee: John Keith (Jack) Edwards

Tape Numbers: IEA.EHA: PM1
IEA.EHA: PM2
IEA.EHA: PM3
IEA.EHA: PM4

Interviewer: Peter MacFie

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Peter MacFie interviewing John Keith (Jack) Edwards at his home in Norwood, Launceston, on 20th June 2002, for the Institution of Engineers Oral History Programme.

Jack Edwards has read the transcript and the corrections he requested were made.

	Tape: IEA.EHA:PM 1, Side A
Time	***Question*** **/ Response**
	Peter MacFie interviewing John Keith (Jack) Edwards at his home in Norwood, Launceston, on 20th June 2002, for the Institution of Engineers Oral History Programme.
	Can you tell us a little bit about your family life at that stage?
	Family life... In my early days I lived at Essendon. My father was a baker, and I spent a lot of my early years around the Aerodrome at Essendon, in the days of Kingsford-Smith, and Amy Johnson and Hinkler and those people.
	You saw some of them land?
01	Yes, I can always remember my mother pushing me forward to shake hands with Kingsford-Smith. I think that influenced me to a degree, on what people could achieve. My grandfather was a saddler with Burke and Wills. I think he ended up an alcoholic, but perhaps that's influenced me to a degree. I don't know which! I think the greatest influence for me to take on engineering was my elder brother Jim, who was twelve years my senior. He was a Civil Engineer, and I think really that influenced me into taking on engineering.
	How many were there in the family?
	There were five of us in the family, three sisters and one brother, and I'm the only one surviving of the family. I'm the youngest.
	Where did Jim do his training?
02	Jim did his training at what was then called the 'Working Men's College' in Melbourne, which then developed into the Melbourne Technical College. I forget the current name of it, but I think it's a part of the university now.
	Swinbourne?
	No, it was the Melbourne Institute of Technology. And then I followed on and did my training there during the war years, at what was then the Melbourne Technical College. Before that I attended Melbourne High School, and I think one of the greatest influences there was the Master of our class, Bill Woodfull, who was the Captain of the Test Team in those days. He certainly taught me the value of hard work and discipline.
	What sort of a person was he?
04	A wonderful bloke. He very rarely talked about his cricketing experiences. As I say, a very good disciplinarian. He'd occasionally tell us little snippets of their travels. But I can always recall - in those days it was always chalk on a blackboard - and when he got down to the stub of the chalk, he'd invariably flip it from one side of the room to the other into the wastepaper basket. In my two or three years of involvement with him, I never saw him miss. No, a wonderful man, and I think those sort of people influence you when you're in your late teens. I think another thing that influenced me, probably into getting into the marine field, was being a Sea Scout as a young boy in Melbourne. I was taught to row boats, and sail, and splice, and tie knots, and all of that sort of thing. I think it's a very receptive age.

	So that was the reason I took on Engineering; and it was interesting. I had won a scholarship to the Melbourne Tech., and in those days a lot of the work was done as night classes. Some of my fellow students were working during the day and doing the course at night. And with due respect to the university course at that stage, most of those who were doing it were doing Engineering because they wanted to do Engineering, not because Daddy thought they should. And it was a good, hardworking era. I finally finished there, I think, in about 1942.
	What were you doing during the day? You said you were doing night school?
07	You could finish the course in three years as a day course plus some night classes, but the ones doing purely night classes, it would take them probably five or six years. But they virtually ended up with the same, the Fellowship Diploma. I found that most of them ended up as very practical engineers. I then wanted to go into the Services, but they wouldn't allow us to go in after we qualified unless we went into engineering work. At that stage I was too young for a commission, so I went to the Country Roads Board Victoria and worked on the Essendon Aerodrome, where I had played around as a kid, and on some roadwork. And in fact worked on the first section of what is now the Tullamarine Freeway. After twelve months or so there I then got into the Air Force, and was on Airfield Constructions at the rank of Pilot Officer. Again that was a great experience of mixing with other people, even mixing with accountants. I found that, again, a good discipline. I remember one of the most interesting jobs I had was when the war finished, and I was Assistant Barracks Officer at Ascot Vale, which included Flemington Racecourse. I was given a hundred and fifty trainee cooks to remove all the Air Force paraphernalia from the racecourse for the first Melbourne Cup after the war, because it had been used as an embarkation depot. And I can assure you it was an education for a very green young Pilot Officer, trying to handle these rebellious trainee cooks. Cooks were bad enough, but trainee cooks were even worse. They were some of the experiences I had, prior to me getting into real engineering.
	Did you ever go up in any of the planes that left the airport? Were you ever able to hitch a ride on one?
10	As a matter of fact prior, as a kid, I remember asking my mother if I could go for a flight in a Tiger Moth, and she very emphatically said, 'No', but I said, 'Well I've already been!' I can recall my first flight in this open Tiger Moth, down over the bay in Melbourne. Which was quite an experience, because in those days most of the aircraft around Essendon Aerodrome were either left over World War One or the early Tiger Moths, and were open aircraft.
	How old were you when you went up?
	I think I must have been about ten, or thereabouts.
	No wonder your mother was horrified!
	Yes.
	And that was obviously, in those days, a lot easier to do. There weren't any regulations or controls.
11	No, it was a very interesting era and I often quote that, that people of my vintage lived in a very satisfying, interesting era, where you could do those sort of things. No public liability insurance problems or indemnities, or things like that. No, it was a good period. Australia was developing, then of course the war came along and that was again an experience. Some of us were fortunate not to have to go overseas. There was such a lot of luck in that, that I happened to be in a certain age group. I had associates who were just a few days older than me, who were sent overseas and spent perhaps four years, in many cases not doing very much. And when they came back I had the advantage of being perhaps four years ahead of them, and yet I did have the advantage of a short term in Airfield Construction in the RAAF; which again was a good experience.

	Had your brother Jim gone on with his career, before we go on?
13	Yes, Jim ended up as Chief Engineer of Haunstrup and Associates. And it was interesting, because he ended up doing a lot of work in Tasmania, as a matter of fact. He designed, and was responsible for the construction of the wheat silos that are all around the state. He did work for APPM at Burnie, at Comalco, at Bell Bay, Boyer, the newsprint mills at Boyer. We then worked closely together when we had them in as consultants, when I was Chief Engineer with the Port Authority. When we built the Flood Protection Scheme in Launceston, Jim did the design of the flood protection - well, the structural design. The Charles Street Bridge, and the Tamar Street Bridge, and a number of the wharves down in the Bell Bay area. And he also had done a lot of work around mining areas - Broken Hill, Mount Isa - around Australia, before the war. Then he ended up as Commanding Officer of the Number Five Airfield Construction Squadron, which did most of the Airfield Construction going in with the forward troops and through New Guinea, for about three years. They developed quite a reputation in that area, and then he came back and carried on as Chief Engineer with Haunstrup and Associates.
	How long were you with the Country Roads Board?
15	I had a stint before I went to the Air Force of about twelve months, and then I had about three or four years after I got out of the Air Force on bridge construction. Partly road construction, some airfield construction, but particularly bridge work. Some design work, but largely out on construction, on bridge work around Victoria.
	Any particular areas?
	Well, we covered most of the state really. I can always remember the first major concrete bridge I was responsible for was one at Hughes Creek on the Goulburn Valley Highway, in about 1943 or thereabouts. And later on my sons were often driving over it and would tell everybody that dad was responsible for this bridge. It was immediately after the war; and quite an experience, because no ready-mix concrete trucks, no cranes. All our lifting was by hand winches and gin-poles, and things like that. When we had a big concrete pour, we'd get all the local farmers come in and give us a hand. It was quite an interesting era. That bridge is still standing now, but like so many other things, it's standing out in the middle of a paddock because the highway has been diverted. But that's I find par for the course these days, for a lot of projects.
	What style of bridges were being used, what reinforcing techniques?
18	I think most of the bridges in Victoria were timber bridges. Timber was pretty readily available, and so were good bush carpenters to work on bridge work. Of course bridges had deteriorated very significantly during the war, because there hadn't been much work done on them, plus the fact that loads were increasing. In a lot of cases there was Army traffic using these bridges. So a lot of it was restoring timber bridges, and then the next development was the standard design of a twenty-four by seven and a half RSJ. Steel beams with timber decking. Then it was only later on, on the main highways, that concrete bridges were designed. And they were largely what we call flat slab bridges. Designed for what was then a big loading, H20, S16. Which was then just an ordinary - I think - about a single axle semi-trailer with a two axle prime mover. But a lot of those bridges are still in service. It was an interesting era, as I say. We had the benefit of the experience of learning during the war, of getting bigger equipment and things of that nature. We didn't ever have transit concrete trucks or mobile cranes, all of that was done with shear legs and gin poles erected on the job. But nevertheless it was a very interesting and satisfying era for young engineers, because you learnt to deal with men and provide camps. The men would live in tented camps on the job, and we'd have to live in tented camps. A great experience with some very good engineers as mentors.

	Wouldn't your department or section have had priority with equipment? New trucks, and even... Did you have bulldozers and things?
21	To a degree, yes, but everything was still short. Although of course a lot of surplus equipment became available after the war, you gradually built up good equipment. I also had the experience too, as vacation work, spending a short time on the Kiewa Hydro Electric Scheme with the SEC in Victoria. And that was an experience; I spent a lot of time with survey parties where we had to go out with packhorses taking the gear out, and camping out in fairly remote areas of north-eastern Victoria. And that again was an interesting experience.
	How many people on the team?
22	There would be about half a dozen, or thereabouts. I always remember being "caught short" on the top of Mount Mackay, which is near Mount Bogong. While I was squatting down a snake went between my legs, and all the chainmen with their sharp axes said, well, they knew what they were going to do if I got bitten!
	So was that as part of the Roads Board?
23	No, that was just work experience during our vacation, while I was doing my course. I think that was in about 1942, or thereabouts. So the sort of people I was responsible to at the Roads Board... Like Ian O'Donnell was the Bridge Engineer, who had been a Prisoner of War of the Japs in Singapore, taken in Singapore. He was a very competent and hard, tough operator. He was a Colonel in the Army Engineers. There were a couple of senior people there. Loder, who was a very well-known engineer, I think he ended up in charge of Commonwealth Works during the war. Another one, Darwin, who was a very brilliant engineer. It was a great training ground, but I couldn't see myself lasting in a government-type operation forever. I then got a job at the Marine Board at Burnie in 1948 as their Senior Assistant Engineer, to work on the port development at Burnie, which was developing very rapidly because of the APPM development. I worked for the resident engineer Len Turnidge, who had worked on the construction of the Captain Cook Graving Dock in Sydney.
	Len Turnidge?
	Len Turnidge. Again, a very competent harbour engineer. I think perhaps that, together with my leaning towards boating and that sort of thing, and marine things, and bridge work, led me into harbour engineering; which I really had a feel for. A lot of harbour engineering is, to a degree, a seat-of-the-pants type of operation. Which suited me, rather than the highly academic. It wasn't a matter, so much of a detailed academic design, as a feel for marine conditions. And know that even though you hadn't had a storm for ten years, that whatever you built had to stand up for a storm that you might get every twenty years. As I say, there were certain characters, too, that seemed to congregate around the waterfront.
	And you kept your interest in the sea from the days of the Sea Scouts?
27	I think so, I think the Sea Scout thing introduced me to it. I can always remember getting into a workboat - a dinghy - on one occasion, and it only had one oar. And I could see all the men sitting back saying behind their hands, 'Now watch this!' But I was able to put the oar over the stern and scull, which I'd learnt as a Sea Scout! No, I think the fact that you were really there dealing with the forces of nature, so much of it developed from experience, and listening to people with experience and learning from them. And, I suppose, making things twice as strong as you thought they needed to be.

	What were the immediate problems and things that had to be done at Burnie, when you arrived in 1948?
28	Burnie was ... The breakwater had been - the original breakwater - had been built back in the early nineteen hundreds, and there wasn't sufficient protection for them to extend the port without extending the breakwater. So some English consultants, pre-war, had come up with a proposal to do just that, to extend the existing breakwater. But fortunately Len Turnidge came, and when he came he started to prepare for that job, but a lot of our time was spent in reconditioning the old berths to make them serviceable for heavier loadings and that sort of thing. Just to get by for the time being. And he realised very quickly that to extend the existing breakwater would have limited the ultimate development of the port. He convinced the Board that they should look at a different arrangement, of an island breakwater. He then organised for Wallingford, the hydraulic research laboratory in England, to build hydraulic models of the various proposals. And they ended up with a far superior scheme by adopting the scheme that is there now, with this island breakwater; which has enabled the port to develop to probably twice the physical size than it could have otherwise. But my time with the Marine Board was mainly spent on the reconstruction of the existing berths, but being guided by a very competent mentor in Len Turnidge. And also a close association with the port's pilots, who are characters in their own right. Because it's one of the remaining professions were one individual carries the ultimate responsibility without anybody to refer to; if he's out on a ship and he's got to make a decision, he makes the decision. They turn out to be very competent, and people who are prepared to make - or have to make - decisions very quickly. Again also that influenced me, and attracted me to the harbour and marine type of work. I then left the Burnie Marine Board before the main breakwater work started.
	Where were you living, just before you go on, in Burnie at the time?
31	I was married shortly after I moved to Burnie to Shirley, who I'd known for many years in Melbourne. She came to Burnie straight out of an office in Melbourne, and the only accommodation we could get was a flat that had been the Labour Ward at the Maternity Hospital out at Penguin. And to cheer herself up, Shirley would go for a walk across the road, through the local cemetery! Any rate, we lived through that, and the Marine Board built a home for us in Burnie. We had a very pleasant time at Burnie during a developing era. APPM was expanding, Titan Products was under construction, there were a lot of young technical people, engineers. Peter Stanhouse, as you mentioned earlier, was one. And we had a very pleasant time there. Other colleagues were Bill Davis, who was an MLC, I think, for many years. Royce Neville, who had been a squadron leader in the Air Force, and ended up as Agent General to Tasmania. We all belonged to the Apex Club in Burnie, and we went around building kids swimming pools and swings, and things like that. It was a great period.
	Did you have a workforce to supervise?
34	Yes. We had a workforce of, I suppose, then, of fifty people. Very difficult to get good tradesmen, but they were typical Tasmanian bushman type, a lot of them. We had a diver there who was an ex-Navy diver, Jock Cameron. We had some excellent men from the bush, and I can always remember one of them, a foreman telling me his men he wanted some timber beams and to 'Harass the Hedges with a Hadze.'
	Yes, the bushmen were very independent-minded though, how did you cope with that? Was that a good or a bad thing?
35	No, I found... I was only in my early twenties, but again I think that the experience I had at an early age in the Air Force - it was only a short period, but that taught me, gave me some leadership skills.

	I think I was thrown into the deep end with the Country Roads Board, with some characters around on these construction camps. I always got on well with the men, and I was prepared to learn from them, which I did, and really I had no difficulty from that area. And a lot of them were old enough to be my father, of course. You know, I'd get comments; if something had worked well, the foreman would say, 'Well, you can't be wrong all the time!' But I think it's invaluable for a young engineer to be thrown in the deep end, and to deal with people like that, because some of these construction workers really have got some wonderful experience and they can teach you a lot.
	How many of them were graduates, and how many of them were sort of self-taught? In that crew of fifty?
37	In the crew of fifty? As far as our office was concerned, I think we probably had one or two draftsmen and a young assistant engineer, but out on the job a lot of them, say one in every four, was probably a fair dinkum tradesman. And probably for every fair dinkum tradesman there was another one who could handle a hammer and a saw, but he hadn't served his time. But never-the-less, they were often very good bush, or rough, carpenters. Good construction workers were hard to come by because there was a lot of activity going on. Too, a lot of them had come out of the Services, and they had experience in the Services.
	Have you had to deal with the unions at all?
38	Yes, but in those days - I'm talking about 1948, '49, '50 - it wasn't a real problem. At that stage, for a small organisation like that, they hadn't become very militant. It was later on that they became more militant. But again I found I had a very good relationship with the unions; and I had to deal with a range of them, from the AWU to the Painters and Dockers. One of my main - perhaps I had better not mention this one - the Painters and Dockers were a pretty tough bunch.
	You can mention it without mentioning names if you want to, if you want to mention an incident.
40	No, I think perhaps could mention that later on, the Port of Launceston part of it.
	Did you have to deal directly with the Burnie Marine Board?
	The Marine Board, it was a good set up. They were elected representatives, and there were some very good people there. My first Master Warden, as he was called, was a Mr Loan. His son Hugh Loan also became the Master Warden after my time, and Hugh Loan was about my age, and we had a lot to do together through Apex and that sort of thing, in Burnie. The Board were made up of enthusiastic blokes,
41	**End Tape: IEA.EHA:PM 1, Side A**

	Tape: IEA.EHA:PM 1, Side B
Time	***Question*** **/ Response**
	Peter MacFie interviewing Jack Edwards.
00	*So you moved from Burnie in 1951?*
	There were negotiations with the Launceston Master Warden, Mr Bill Hart, for me to take up the job.
	In Launceston?
	In Launceston. He came up with the title of 'Work Superintendent', which I wasn't prepared to accept, and I said I'll only take the job on if it is termed 'Engineer'. He agreed to that, but I always recall a letter he sent me about that. He said, 'A rose by any other name would smell as sweet'. In any event, Bill again was a great mentor. He would answer me with grunts, and if I got a grunt I knew it meant 'Yes', and if he meant 'No' he told me very clearly! He was a mining engineer.

01	I worked under Bill Hart, he was the Chairman of the then Marine Board, Launceston. But this was at a time when Comalco was just about ready to be established at Bell Bay and I really came through to supervise the construction of the wharf for Comalco at Bell Bay. Which, incidentally, was designed by my brother. Again this was a wonderful chance for me. At twenty-six I was the Chief Engineer of the Marine Board, in a period when development was really starting to take off. And I had no difficulty in working in with some of the old hands who had been there for a long time. The fact that Comalco going to Bell Bay was really what instigated the development of the whole Bell Bay area, and the whole port.
02	Also, at the time, shipping was generally increasing rapidly. Apple shipments were increasing, and that involved us designing and building concrete berths at Beauty Point on the West Tamar, at Inspection Head. We then came into the tankers. What was a tanker pre-war was a fairly small vessel, but we thought these were massive - T2 Tankers - I think they were about six thousand tons. So we had to build new berths for the tankers to discharge. Mobil, or what was then Vacuum Oil Company, set up a terminal at Bell Bay, so we built and designed a berth for them very quickly.
03	By 1956 we'd built up a pretty good construction and design team to do this wharf work, and at the same time Kings Wharf in Launceston was still operating, and we had to do work there. A new wharf was built there, and we had to do work on the older berths. At this time the Charles Street Bridge in Launceston was in a pretty derelict state, and all that wharf traffic depended it. The government were having difficulty in how quickly they could build it, so the Marine Board offered to design and build the bridge, which we did. Within twelve months, to the day, we had the bridge built. Incidentally, when it came to be opened, the locals wanted it opened as soon as traffic could get across, but the Minister of the day - and I have a lot of respect for Eric Reece - wouldn't allow it to be opened until it was completely finished. So the men on the job arranged an unofficial opening, where somebody rode across on a draughthorse and cut the ribbon, and we had somebody else come up in a Rolls Royce with the 'Official Party' made up of the "Faster Warden", and the Minister and the local Mayor. So we had a bit of fun in opening that.
05	Later on we built the Graving dock. The old floating dock had reached the end of its useful life, and we had a lot of floating plant that we had to service. We then built the Graving dock in Launceston; the 'William Hart Graving Dock', named after the Bill Hart I mentioned earlier.
06	By this time we had a very competent team of construction workers and mechanical people, and we had developed a reputation with building the Charles Street Bridge. We then undertook a lot of the construction work of the flood protection scheme, and I was a member of the Flood Protection Board, along with representatives from the Public Works Department, the Hydro and the City Council. We undertook that on a contract basis. We then built the Tamar Street Bridge in Launceston, which had to be replaced; again on contract to the government.
07	In about 1958 there was a worldwide change to containerisation and roll-on-roll-off shipping, and I had the good fortune to be sent overseas to investigate this. I came back and we built the roll-on-roll-off terminal at Bell Bay, to service ANL. Again with our own forces. I think that period was the take off of the real development at Bell Bay, because shipping had altered dramatically. Mechanical equipment - heavy forklift trucks and so on - had been brought in for the operation, and we then had to design heavier and stronger, bigger wharves and marshalling areas.
08	Then followed the development of the BHP Temco plant at Bell Bay, which again meant another wharf development at Bell Bay. Following that, I think, was the thermal station at Bell Bay, where we built the jetty for the tanker berth.

	I can always recall, too, having a close association with Sir Allan Knight. During the power emergency, when there was a drought in the late 1960s, the Hydro brought in the ship from New Zealand, the *Hinamoa*, to provide emergency power. We had to build a berth for that, and we had three weeks to do it, which we did. I remember scrambling around the scrub with Sir Allan, and on the same day we scrambled around looking for a site for the permanent thermal station.
09	I think, as an instance of that era, Sir Allan was able to say to us, 'Well yes, this is where we'll go', and what he said went. We offered to build the berth for them. I think he arranged to negotiate with Comalco to get the land. And all this happened within a matter of weeks. Government approved it, and away they went. Oil then would have cost, I think, thirteen dollars a tonne, and I think it's now three hundred dollars a tonne. Interestingly enough, I was at a Hydro function last night, and there was also publicity in the Institution Journal this month, saying the foresight of the people who designed that power station for conversion to gas.
10	We now have the situation were Duke Energy have got the gas pipeline to a stage where the gas will be coming into Bell Bay in August. We have a drought situation that has arisen again now, Bell Bay has been put onto oil, but the oil is there in the tanks fortunately, so there is no need to buy oil. But by the time the station gets operating - and it is, it is actually operating now - by August it will convert to gas, at a very much cheaper rate. I understand that the commission has agreed only a few days ago to convert the second machine to gas. So all of these developments started; as I say, the ease of doing it, where you had one competent boss... In this case Sir Allan Knight, who knew what he was about. He got in contractors to design the mechanical side of the thermal station, and it has been sitting there as insurance for many years. It's a good station. It hasn't been used much; mainly because of the price of the oil, and also because of the foresight of people like Sir Allan, who developed the Hydro schemes to keep abreast of our requirements.
	Were you involved in the actual construction of the thermal station?
	Not of the station, only of the jetty. The tanker jetty. Which incidentally, and very nicely, they've named after me!
	Congratulations.
12	Although just like me, it's probably due to be pulled down in the next few years!
	So you were mainly constructing the wharves up there at that stage?
	It was mainly the wharf construction at Bell Bay. Then followed on the woodchip development. We built the berth for APPM at Longreach. It was interesting, too, that some of the small things that affect these sort of developments. I don't think that our Board or anyone thought of Longreach, just south of Bell Bay, as a potential port area. But I can always remember the Chief Engineer of the railways, Geof Dineen, saying to me once, he said, 'You'll end up with four miles of wharves along Longreach'. Just little things like that suddenly hit you, and you find that as soon as the woodchip thing came about, that was the logical place to put it. Then, of course, the next development was that the size of ships for handling woodchips, and the bulk carriers to service not only Comalco, but also Temco, were getting bigger and bigger, and there were restrictions in the entrance channel from Low Head into Bell Bay. It's got some very deep water, up to a hundred and sixty feet deep -
	This is on the Tamar?
13	On the Tamar. But the channel is fairly tortuous, and there were outcrops of rock in certain places which made navigation for bigger ships pretty difficult. In accordance with the Hunter scheme - and Hunter was a Chief Engineer of the Manchester Ship Canal in England - he advised the Board back in about 1918 of a port development scheme which incorporated not only Launceston, but also the lower reaches.

	He recommended to the Board of the day that they undertake dredging work in the lower reaches to improve shipping. They then had constructed in Scotland, the dredge *Ponrabbel*, which was launched and then sunk by the *Emden* on the way out, during World War One. The replacement was built, *Ponrabbel II*, and she came out and on the way ran aground in Portugal, and was damaged.
14	This unwieldy dredger came to the Tamar, plus all the ancillary gear - barges and other equipment - and that was used for a minor rock removal in the George Town area, of Garrow Rock and Porpoise Rock. That served quite adequately up until the period of the early nineteen sixties. Then we undertook the removal of further rocks and the removal of half of Garden Island, which, near George Town, created a difficult turn for navigation. The Port Authority undertook to do most of the dredging work itself, but it let a contract for removal of Garden Island, which was done by Roche Brothers. And again, a very successful contract.
	How do you spell 'Roche'?
15	Roche - R-O-C-H-E. While all this was going on, the fact that we had a good Graving dock in Launceston, and the Bass Strait Oilfields were starting to develop, we latched onto the ship repair activity for the tender vessels from Bass Strait. That became a very profitable operation, not only for the Port Authority, but for the whole community of Launceston. Engineering works, and everybody who supplied anything for ships. This carried on for a number of years, in conjunction with our major dredging works, so that we were able to get some very competent tradesmen, very good people. So much so that in the late seventies we decided that the Graving dock wasn't large enough, so we built the Ship Lift at Kings Wharf, utilising some of the later sections of Kings Wharf. And again carried on a ship repair operation, which was very successful.
16	But unfortunately with the changing era, perhaps, of "bean counters", it was decided by somebody that they shouldn't be doing this outside work, and a lot of those activities were sold off, terminated or reduced substantially. But nevertheless, it was an interesting era. We had dealings with some very interesting people from the Bass Strait oilfields.
17	I can always recall in the early days of developing the Temco operation at Bell Bay, there was a bit of a difference of opinion about some Crown Land around the waterfront at Bell Bay. We saw, as a Port Authority, that we should have that retained as part of the port future development. So our then chairman, Sir Raymond Ferrall, and I went across to see Sir Ian MacClennan, the Chief Executive Officer of BHP, and said, 'Look, we want to retain that strip around the waterfront.' And he very bluntly told us that the only reason that they had gone to Bell Bay, or one of the main reasons, was that they had water frontage. So without any more ado, he picked up the phone and he rang the Premier of Tasmania, Sir Robert Cosgrove, and he said, 'I've got a couple of blokes in here from the Port Authority trying to throw their weight around, what do I tell them?' And Cosgrove immediately answered back, 'Tell them to get stuffed!' Which immediately set us off on the right footing with BHP, Sir Ian then went into Essington-Lewis' office and bought out a big cigar and gave it to our chairman, then took us to lunch at the Atheneum Club. From then on, our dealings with BHP were top class, and we understood one another perfectly. I think the letter of agreement, which is still standing today, consisted of two pages. Just an exchange of letters.
	I think our deal with Comalco was similar, just a one and a half page letter, exchange of letters. And that's the way work was done in those days, by the shake of a hand, and nobody pulled any punches. It was a very pleasant way to operate. But the things that go on behind the scenes in negotiating these operations (chuckles).

	The Launceston Marine Board is actually responsible for the whole of the estuary really, aren't they?
19	Yes. The Port Authority controlled the whole of the estuary, and I think - this was before the days of the Department of the Environment - all of us at the Port Authority had a very keen interest in the river; half of the Wardens spent time boating on the river, I spent time sailing on the river. We all had a very real attachment to the river. We had a real problem in Launceston of raw sewage being discharged into the river, which we fought for years. We were very strict in controlling effluent into the river from industries, but we really had no legal authority to do that, but we got away with it. And we found that industry cooperated; and we did a lot of things that perhaps might have been beyond our Act, but they served the community well, and as time has gone on those things have been formalised a little bit more. But never-the-less it was a developing era, and we had a very good Board of unpaid members, local business people, shipping people.
	Who were some of the people that you recall?
20	Well, Sir Raymond Ferrall was one in particular, he was Chairman for many years of my time, and he and I worked very closely together. A very enterprising man, with a very keen interest and good knowledge of the river, and good knowledge of business.
	We had Cyril Carrington, who was the Chief Executive Officer of Websters. In recollection we had John Hart, who was a brother of Bill Hart. He was a local accountant and very keen on the river. A lot of people who really loved it. Keith Meredith, who was a later Master Warden or Chairman, who managed Hammonds Transport. People who knew shipping, and who dictated the policy and left the detail to those of us in charge of the operations. I know I had a very happy association there for nearly thirty years. They were a good bunch of people to work with, and taking on some pretty major jobs largely done by day labour.
	How many were on your own staff at the time?
21	Well we had, at one stage, up to three hundred and fifty men working on the whole operation. We had a small engineering staff. I think we probably had about three engineers, a marine engineer and some draftsmen. One of the most satisfying parts of my career was that we regularly engaged cadet engineers as draftsmen. They would perhaps get half a day off, or a day off a week to go to Technical School, and they'd do night study. And once they had graduated, we would then virtually kick them out to go and work somewhere else and get broader experience. Often I was chastised by our Board, saying, 'You've trained these lads, why not keep them?' I said, 'Well if we keep them, they'll be no good to us later on.' But invariably, these people ended up in all sorts of senior and interesting jobs. One now, who went as an engineer to Burnie, is now Chief Executive…
	[It's still on is it? (Tape)]
22	Chief Engineer of Darwin Port Authority, with all of their big developments. Some of the others worked with Maunsell and Partners, who then came back as Consultants to us, with the advantage that these lads knew what we wanted. And I found that very satisfying, that these people who had done their basic training with us had gone out and really achieved things, all over the world.
	And their training was in Launceston?
23	Yes, at that time, the only way to do an Engineering course other than through the Technical College was to go to Hobart, to the University. So some did; but a lot of them, their parents just could not afford to send them. And those talents would have been lost. The Technical College had a Diploma Course and that developed later on into the TCAE Course, but I think the big benefit of it was this sandwich type training.

	They had this practical training mixed with the academic work. And I think it proved itself because consultants of such standing as Maunsell and Partners would not be engaging people unless they were competent. It interested me into getting into the education field, and I was at one stage Chairman of the Technical College Council, among other jobs. It's great in a small community like this to see the facility there, for these lads, or people, to train.
	How long was the course?
24	The course, I think, would take them again about six years, six or seven years, because it was only part-time.
	What were the major - apart from the Bell Bay area - what were the major imports and exports from the Launceston Port itself?
	Well... if you look at the thing as a whole, this was a stage of transition from Launceston to Bell Bay, or lower reaches. I think thirty thousand tonnes of cargo a year was handled over nearly half a mile of wharves in Launceston, by the old manual means, and most of this was general cargo. And timber. Motor vehicles coming in, parts, furniture - all the general cargo. Timber going out. With one small berth for the roll-on roll-off ship at Bell Bay, it handled ten times that, three hundred thousand tonnes in its first year.
	At Bell Bay?
25	Yes. Now that cargo was then transported, by road generally, to Bell Bay from Launceston. But of course with the aluminium being exported, the bulk - ferro-manganese being exported...
	Where was that from?
	Ferro-manganese from Temco, at Bell Bay. Timber was transported from all around the north-east area. Northern area. Frozen vegetables. It all followed to the roll-on roll-off berth at Bell Bay, so that gradually the berths in Launceston faded out of existence. There was a little bit of shipping with the island traders coming in from Flinders Island, but eventually that ended up going into Bridport, and the only use for the berths in Launceston became their use for ship repair. Consequently the dredging was ceased in the Launceston area, and everything is now concentrated at Bell Bay.
	Were you involved in the actual - the ferry, in the ferry terminal developments?
26	Yes, I was involved closely in that. I had a very close association with the Australian National Line, and in 1958, as I mentioned earlier, I went overseas basically to look at the roll-on roll-off ferry operations. And came back with some very good information on that, which we used in our design.
27	Following that, while I was still with the Port Authority, ANL engaged me as a consultant in the planning of their roll-on roll-off terminals right throughout Australia. I covered from South Australia- from Adelaide, Geelong, Port Kembla, Sydney, Brisbane, Mackay, Rockhampton, Townsville and Cairns. We had a very close working relationship with Australian National Line. But our operations were mainly on the cargo side. For a few years we had the Sydney passenger ferry coming in and the Bass Trader coming in with passengers, but they are now concentrated at Devonport. And I'm supportive of what the government is doing now; in concentrating that. Putting the two ships on regularly Melbourne-Devonport. I think it's the right answer, much as we would have liked the passenger operation. But ours, Bell Bay, is really a good bulk general cargo port. You've got plenty of land area, plenty of backup area, and that's what we concentrated on, and needed to be concentrated on.

	Good. That's probably a good time to stop at this stage, we've got about a minute there. Would you like to, after lunch, go on to talk more about the Marine - the Port Authority in greater detail? Do you think you've covered it?
28	No, I think we've covered most of the Port Authority thing,.
	End Tape: IEA.EHA:PM 1, Side B

	Tape: IEA.EHA:PM 2, Side A
Time	***Question*** **/ Response**
	Peter MacFie interviewing John Keith (Jack) Edwards, at his home in Norwood, Launceston, Tasmania, on 20th June 2002. *This is Tape 2, Side A*
00	*Jack, can you give us the background on other aspects of the PLA's involvement in developments along the river, including Batman Bridge that you've mentioned?*
	The Port Authority took a very keen interest and was vitally involved in such things as the Batman Bridge, and the Bell Bay railway, and the East Tamar Highway, for example. It's interesting, the Batman Bridge point of view. When the bridge was proposed, there were two sites that were proposed. One was at Longreach, where there was going to be a low level bridge and a lift span, or one at Whirlpool Reach - the Batman Bridge site now.
02	The Port Authority's main concern was its effect - or it's main concern was that we wanted some sort of crossing down there - but we had to be sure that we didn't cut off the river to navigation to the upper reaches. And it just happened at the time that I was in London in 1958, and was speaking with the consulting engineers Maunsell and Partners, who were designing the bridge. And they just happened to say to me, well the balance of cost between the two sites was that at Whirlpool Reach with the height clearance that we'd specified, that bridge was going to become more expensive than the Longreach proposal. Is there any way that that could be reconsidered? So I immediately sent a cable back to our Harbour Master and pointed out the position, that if his requirements for the height clearance was reduced by I think something like ten feet, that the Whirlpool Reach site could win the day.
03	And the answer came back very quickly, after he had consulted the various shipping companies, yes that could be accepted. That small action and coincidence saved the day, and gave us the bridge at Whirlpool reach. And when you think of it now, if we'd had a low level bridge at Longreach, it would have immediately blocked off access to the shipping berths at the woodchip plant; and there's always the risk of a ship coming around the corner, the bridge keeper asleep, and the bridge wasn't lifted. So that is one of the interesting things that happened
	The Bell Bay railway was a case, again, where we were very keen to see that develop, and the Authority did all it possibly could to assist in providing information, and planning, and land areas and what have you. Just as an indication - we looked on ourselves as not just the immediate port Authority, but an Authority responsible for the prosperity of the region
	. I think the other aspect of the river where the Port Authority took a very keen interest, although it may not have been legally empowered to do it, was controlling the pollution and environment along the river. Because a lot of our Board Members were almost in love with the river we took a very keen interest, and I think we were instrumental in putting pressure on the Launceston City Council in particular, to undertake sewage treatment.

04	As far as the industries were concerned, the Port Authority imposed restrictions on effluent on those industries, really without any legal authority. But we got away with it, and that was before the days of a Department of the Environment
	Also, on advice of the Chief Engineer of the Port of London Authority, we instituted a system way back in the 1960's, of monitoring the pollution conditions of the river over the full length. And while that gave us a very good indication of what was happening, that information now, going back so far, has been invaluable in present day controls. These are the sort of intangible and informal activities that the Port Authority undertook, perhaps beyond its proper realm of jurisdiction, but again it was very effective.
05	*Did the Authority think of the whole estuary as it's responsibility, or was it just the pieces here and there? Because in effect, it was almost like it has eventually evolved as sort of the Tamar Councils, wasn't it? It had that sort of managerial role over the estuary.*
	Well I think that the fact was there that the Councils didn't take an interest in it really, at that time. There wasn't the pressure from the public to do things. But it was easy for the Port Authority to do it. We had the expertise, we had the navigation people, we had interest in the river, we had the engineering people. And we had equipment going up and down the river all the time on major construction jobs, and it wasn't a costly exercise to build a boat ramp here and there, or a jetty here or there. It was a fairly easygoing sort of an attitude.
06	Sometimes there was criticism from the shipping companies that their fees were being used for these sort of things. But it was a cheap PR exercise. We saw it that way; and if we hadn't done it no one else would have. The Authority has no argument that now the City Council for example, and the other Councils, have taken it under their wing and have taken a very keen interest, and are doing a very good job in waterfront and dredging things for recreational purposes, which is really their proper role. But it was just a matter of horses for courses. It happened that we were able to do it, and the other people weren't interested or didn't have the capacity. But those conditions have changed, and what was done in the early stages was a catalyst, I think.
	You mentioned earlier about the Flood Protection Scheme that was built with your brother's involvement. How much was that triggered by the 1959 floods, in preventing that sort of thing happening again? Also with the 1929 floods?
	Yes, well the 1929 flood was really the cause of this, of something having to be done. When the - I can't recall now where the pressure came from for protection, again it may have been a Municipal one, but it had a material effect on the Port activities in the upper reaches. And again because we had the expertise, we were invited to join the - The first authority was the Flood Protection Board, I think, which did the investigation. This work was a government Board set up, consisting of the Director of Public Works, the representative HEC, the City Engineer and myself.
08	We appointed the University of New South Wales Professor Munro, to undertake an analysis and a model study, and come up with a recommendation for the flood control. And of course the works would have had a major effect on the Port area. But at the time, I think the fact that we had some expertise in the area, that we were involved, and that it was a very interesting operation... Then once the decision was made on the design of the scheme - which was designed, the concept was designed by the University of New South Wales - the Flood Board was formed to actually carry out the engineering design and the construction.
	The board had it's own small staff in Launceston and they engaged consultants to do the structural design work. And again the Port Authority came in - although I was a member of the Board, we came in as a contractor to build most of the concrete works while the other earthworks were mainly let out to contractors.

	It was a very successful operation, but we haven't had a flood of that size, that magnitude, since - but it will happen again. There's no reason why it won't happen again - and the Flood Scheme really hasn't been tested in anger yet. It has been handed over now to the City Council who actually control the maintenance of it, and it is funded by both the City Council and the State Government.
	You mentioned just a minute ago also about the sewage. Did you actually, did the PA actually do sewage works?
09	No, we undertook a few little minor jobs, pile driving and so on, for them. No, this was a City Council undertaking, and again, complaints had gone on there for years and years, and nothing had been done. But again, social conditions change, and people - more people were sailing on the river and so on, and public opinion became such that it put the pressure on. And we had a very enterprising Mayor, a Greek, Jimmy Tsingalou. Or Jimmy, he was, Mayor Jimmy. He cut through all the waffle that had gone on for years, and put the rates up by a significant amount - and there was hardly a complaint about that - and the treatment works were put in. Now the conditions have improved immensely.
	What about the recreation, the interrelationship between the PLA and recreational users? Was that formal or informal?
10	It was an informal thing. We found that we had a close association with the yacht clubs, and ...
	Rowing, I suppose?
	Rowing. I think the Board had a very sympathetic view to any of their reasonable requirements, and I think the Board also had a philosophy that if somebody of the locals wanted a boat ramp built, we might provide the materials if the locals would provide the labour, for example. And again, it was a very happy arrangement, which probably doesn't exist quite as much in these days. But in those days it was a verbal agreement or a shake of the hand, and that's the way things were done. It really didn't cost the Authority much money, but it gave very good publicity.
	Any other environmental aspects you wanted to mention before we move on?
11	I don't think so. I think there's one aspect I'd like to say, from an engineering - from my professional point of view, an engineering point of view. One of the big satisfactions was that this was a task where as an engineer, you not only had to design the works, you had to build them, but moreover you had to make sure they earned a dollar at the end of the day. It was a very commercial type of operation. If you're going to spend a million dollars on a project and you had to borrow money to do that, you had to get a return.
	I think the proof of the pudding is in that when I started in 1951, the tonnage of cargo was something like three hundred thousand tonnes a year, total tonnage; when I retired from the Authority in 1980, it was in excess of four million tonnes a year. And it showed that in an operation like this, you need to have... If you're going to run a business like a port, you need your shop first. And I think a saying that I've heard from an American Port Authority was that 'When the port prospers, so does Main Street'.
12	And that was very obvious, that the growth of the port was matched by a growth of industry and commerce. There was great cooperation there, for example when the Port Authority undertook the repair works on particularly ships from Bass Strait, the oilfields, we got all the local contractors together. Local engineering works, joinery works and so on, and said, 'Now look, we're prepared to manage this. We're prepared to make our facilities available. We will carry the can for being paid, because we know that if the owner doesn't pay, we have a legal right to keep his ship in dock. Would you cooperate by sub-contracting to us?' And there was a complete and unanimous approval of this, and we had wonderful support from local business.

13	And it's quite fantastic the range of work that even these small ships required; from joinery, cabin fittings, door locks, carpets, refrigeration, food supplies, engineering works, engine repairs, propeller repairs. And it was a very, very prosperous sort of an operation for a number of years. In fact over the years of our heavy construction, our revenue from the ship repair work carried the port operations through a number of years before our cargo built up. And as well as that, the community benefits from that were immense. It just proves that the port is a very important part - commercial part - of the infrastructure and a satisfying part from the management point of view.
	Has the development at Bell Bay caused decentralisation of those equivalent industries? Have they moved down there, or are they still, when they are used, based in Launceston?
14	That's an interesting one, because one of the advantages for ship repair in Launceston was that a lot of the work only involved a tradesman for perhaps three hours. And it was very easy for him to nip down to the dry dock and do a job and back again, whereas it was a couple of hours travel to and from Bell Bay. But then as this work developed, a lot of work was done on ships afloat at Bell Bay. This developed slowly, but in the meantime small engineering works started up in the Bell Bay area. So it's a progressive sort of a thing, and now I suggest we're probably about half way through it. There are some established engineering works in Launceston, but there are a growing capacity at Bell Bay to do that work. But there's never a black and white demarcation line in this, it's just one with the port - the whole port operation - transferring down the river. There were certain activities, for a while, became a little bit difficult, but they're gradually sorting themselves out.
	Now what would you like to move on to?
	Well I think -
	[Break in tape]
15	*Going on to around 1980?*
	Around 1980 most of the major works had been completed, and I had had a few health problems which made me decide to retire from the Port Authority operation at the age of fifty-five. But prior to that - and again I think thanks to our chairman, Sir Raymond Ferrall - I was gradually introduced to some outside activities. I was a director of the Launceston Gas Company. I was a director of the Launceston Bank for Savings. I became involved as the chairman of the Technical College Council then I became involved in education, with tertiary education. I was chairman of the Tertiary Education Commission fof Tasmania during the time of quite dramatic changes, in getting University activity into the TCAE in Launceston.
16	I became involved in the Australian Maritime College, and I was involved in that from the very beginning of its concept. And I decided it was time to make the break, and I then got into my own little consulting operation on mainly harbour works, where I did work throughout Australia, New Guinea and New Zealand. In a relatively small way, but again, in a very interesting way. But then I found that my activities with these other directorships and what-have-you developed. I was appointed to the Hydro-Electric Commission, as an Associate Commissioner, in a very interesting period of major construction. And again, the furore over the Gordon-below-Franklin development. I was ten years as a Commissioner, an Associate Commissioner, of the HEC.
17	I was on the Gas Corporation Board for twenty-five years, and chairman for about ten of those years. That was taken over by Boral. Interesting period when we changed from towns gas to LP gas and now, of course, we're seeing the introduction of natural gas. The education area was very interesting, I was involved as chairman of the Tertiary Education Commission which recommended the development of the College of Advanced Education in Launceston to a campus of the University of Tasmania.

18	I was involved from the very beginning in the establishment of the Australian Maritime College, which is a very, very interesting and successful operation. It was something which was, of course, close to my heart and close to the Port Authority's heart. No one would deny that it was a political decision that it came to Launceston. I think that it was a correct decision, because I think it has become part of the Launceston community. I think there is more close association, closer association, with shipping activities in the port over a wide range than there would have been in a major port such as Sydney. This college has gone on from strength to strength. I also was chairman of their commercial wing, AMC Search Limited, which undertakes consulting work throughout the world. It has an office now in Kuwait. It has an office in Melbourne, does a lot of work in Malaysia and provides courses to the Pacific Islanders. Again, financially a very successful operation.
	How many students does that involve?
19	I think a bit over a thousand come through every year. It's a great course. It's a sandwich-type course for a range of people, from fishermen who perhaps can hardly read and write, right through to shipmasters and to degree courses and to Masters courses. It's very much a hands-on operation. A lot of their courses are sandwich courses, which mean that students who are going to become a Ship's Officer will come to the college for six months, go to sea for six months to make sure they don't get seasick... And if they still like the life, come back for another twelve months of academic study, back to sea again for twelve months and then back to academic study for another twelve months.
20	The college has built itself up a worldwide reputation with it's very well equipped simulator laboratories, model tanks and things of that nature. But what's more, it brings in a vast - I think the number of nationalities there at any one time probably number ten or fifteen. And the effect on the local community of Launceston is quite dramatic. In fact, I think it's been said that between the University and the Maritime College, the number of people involved is more than what was originally involved in the old Patons and Baldwins Woollen Mill in Launceston. So it's a sign of the times; and they're all very interesting people, well educated people, and it's been of great social benefit to Launceston.
	Perhaps part of the change from Launceston being an industrial town towards being a knowledge [centre?]
21	Yes. I think as you mention that, the same thing has applied with these call centres that have been set up in Launceston. I also had the good fortune to be a foundation director of the Tasmanian Development Authority and I was there for ten years. Amongst other things it introduced these call centres, which, for an area like Launceston where you ... We had Ansett - of course that unfortunately has gone downhill - but I think we've got Centrelink. I think we've got Westpac and I think there's another one coming in, I think Telstra are now putting one in here. But each of these call centres employ something like three hundred bright young people. And there are a lot of them in perhaps the twenty to thirty age group, who otherwise would be wanting to leave Tasmania and go somewhere else. And they are apparently working very successfully. The employment turnover is very much less than in the capital cities, apparently. And that's been a very successful operation, and that is one that I think the Development Authority can take credit for.
22	It's hard to pinpoint the actual projects that they might have brought into the state, but they introduced things such as the 'Taste of Tasmania'. They were supportive of the wine industry, they - particularly in the rural area, in marketing, they were able to knock into shape the sort of marketing arrangements for Tasmania overseas. And I think that was a very successful operation, which was originally set up as a private enterprise-type Board, but funded by the government and controlled by the government.

	The other interesting one I was involved in was the old Launceston Bank for Savings. I was director and chairman there for many years, until it got to the stage of the Bank was getting bigger and the equipment more sophisticated, and it more or less forced an amalgamation of the banks to keep costs down and to keep abreast of the modern technology. But again, that was a different era.
	A controversial one for the small regional banks, wasn't it?
23	Yes.
	How did you cope with those, how did the Bank cope?
	Well that was a difficult period, and I have to admit I ended up with a heart attack at the end of it. Four heart bypasses! But it was an interesting, different experience. But again, I don't know whether I mentioned before, one of the satisfactions was seeing... having the experience of dealing not only with the engineering aspects of projects but also the commercial aspects, I think stood me in good stead for some of these other activities in the real commercial world.
	Can we just perhaps elaborate on a couple of those projects that you've mentioned? With the TDA, were you particularly interested, or specialise in any particular projects that they were pursuing, or were you a general...?
24	No, I think the Board, TDA Board, I was one of the foundation directors, of which I think there were five of us. The other members were Sir Harold Cuthbertson of Blundstone Boots, Charles Clements of Clements and Marshall, Jim Rickard was the chairman of MTM Industries and Phillip Chandler was the Chief Executive Officer. And we endeavoured to work as much as possible on a private enterprise basis, to try to assist industries in their marketing, to try to introduce new activities. I think particularly in the rural areas, the Authority came up with a number of schemes for the introduction of changes in the type of crops that are produced. Really as a coordinating authority, and to provide a coordinated marketing operation. It is still operating, under a different name.
26	The Department of Development has now become really a government department. But I think they're serving a very good purpose in providing private enterprise input and some expertise from outside into developing industries. And I think it developed a confidence with industries wanting to come to the state. They had one body they could come to. They could talk to people who had a practical commercial knowledge. If they didn't have it themselves, they could get someone who did. And I think it has achieved a very useful purpose, and still receives pretty good, strong government support. In fact our present Premier, Jim Bacon, was also a director of it at one time, during my period. And it's got a very close association with government, and I think, held in good regard by industry.
	We might just stop there because we're nearly at the end of the tape.
27	**End Tape: IEA.EHA:PM 2, Side A**
	Tape: IEA.EHA:PM 2, Side B
Time	***Question*** **/ Response**
00	*Can you just elaborate a bit, Jack, on your involvement with the Hydro on some of the major projects at the time of your involvement?*
	I had an interesting period with the Hydro, as an Associate Commissioner over the ten years from 1980 to 1990. I've always held a high regard for their engineering excellence and development works, and the foresight that went into this development, because it was the core. It was the reason for the development of many of our major industries around Tasmania. The E-Z, the Pasminco in Hobart, certainly Comalco at Bell Bay, Temco at Bell Bay. Without the works that had been done by Hydro, these things could never have happened.

	And the skills that developed over many years were really impressive and it was very good to be involved with these people. Although the 1980 to 1990 period was a rather tumultuous one, with the opposition by the Green Movement to the Gordon-below-Franklin power scheme. And I think it meant that that particular scheme was not developed to the extent that it should. And a lot of these were political decisions. They seemed to happen just before elections; and I think some of these decisions to stop and start these works were not based on reality, but on political expediency.
01	But during my period, the schemes that were built were the Anthony-Henty Scheme and the Piemen Scheme. And I think with the completion of those schemes, quite apart from any other consideration, Tasmania had almost run out of economically viable hydro schemes. But it's interesting to note there was, at the time, major capital works then ceased in the early 1990's, but then the demand again for power built up and other advantages became evident for the use of hydro power, because of the great demand to reduce CO_2 emissions from thermal stations. And while this may be an artificial control, extra value was put on sustainable energy produced by water power, wind power, wave energy or whatever, as against that produced by thermal power.
02	And it just happened that now HEC, or what is now the Hydro Corporation I think, has come into a scheme of developing wind power, which has become economically feasible purely because of this - or largely because of this CO_2 emission legislation. And also that a wind power scheme can only operate if you have some other alternative scheme running along side of it. We don't want to be tied down to only having a hot shower when the wind blows! So there is a very close integration between the wind power and the hydro storages which, in effect, act like a battery, a storage battery
03	In conjunction with this - and we are hoping for a decision very soon on the Basslink, which is a link with the whole Australian electricity market. And in recent years, the market for energy has been operated like a stock exchange; the price for power can vary within every half hour. And for this reason Hydro in Tasmania, with it's source of battery power, really, is able to turn on a tap very quickly when the prices are high; and when there is a peak demand in Melbourne or Sydney, it is able to provide power at a very much higher charge than it would over a normal operation. And this, the reason for this is that it obviates the thermal stations on the mainland having to be started up, which can't be done quickly. It takes weeks to start up a thermal station. Whereas it only takes seconds to start up a hydro station..
04	So in these present few months, it's quite interesting that the demand for peak power which can be provided by Tasmania, in a marketing sense, is also going to be supplemented by the introduction of the gas coming across Bass Strait. Which will mean that the thermal station at Bell Bay, which is now operated on oil, can be operated on gas. And the whole system is falling into shape very, very well. But behind all this is the work that has been done by the Hydro Electric Commission over the last perhaps eighty years, in developing this wonderful source of power throughout Tasmania. So all of this is evolving, and it was fascinating to be involved in it over this period of coming change
	Was that integrated approach being discussed in your tenure with them?
05	Well, it was known that we were coming to the end of economic major hydro installations, and that the alternatives for supplementing power was wind power, perhaps tidal power and a Bass Strait cable link. It was quite obvious. And the other point that has come forward is that some of these schemes that were built fifty years ago, while they've operated very efficiently, now with modern technology an extra five percent of power can be wrung out of these stations, by simple things such as a more streamline flow of the water down the pipes by improving the impellors, the runners on the turbines.

06	And modern technology is making quite a big difference; and the extra power that is provided by this is eligible for this 'Carbon Credits' I think it is called, which puts Tasmania in a far better position than it was. But it all comes back that it is the wise foresight of the planners of the hydro schemes in the past, who didn't overdo the design. In fact the fact that we start – to get close to running out of power in drought conditions shows that the scheme was not over-designed by any means. It was very finely planned so that capital expenditure was not excessive.
	How often were you meeting, you know, the Commission?
07	I think we met regularly once a month, but as well as that, I suppose every second month, we would make a visit to some of the works going on. And it was not a full-time job by any means, but it was an interesting involvement, and I think that all the Commissioners were able to make an input.
	And in these various capacities and positions, was this an Honorarium or were you on a retainer?
	No, we were paid a fee. And it wasn't a large fee in those days, compared with what directors get these days. For example, I think Hydro was probably five thousand a year. [Laughs] And TDA I think, later on, was probably ten thousand a year. Chairman of the Bank was ten thousand a year. So it's not a major money spinner.
	Very modest.
08	Modest, but I think it's a changing era. I think that a lot of us, a lot of people in my position did this as a contribution to the state as a whole, because we felt a responsibility to make whatever contribution we could. And it wasn't a matter of money. It was a case of doing something.
	Community...
	Involvement and...
	Commitment.
	Commitment, yes.
	That's interesting, yes.
09	I think, too, the other satisfaction of these sort of things, and consideration, were the social benefits we could see. The generating employment within the state, which was a vital thing. And of course, during the hydro construction stages there were, I think something like, from memory, four thousand people involved in the hydro works. I think we felt that providing training facilities for Tasmania was terribly important for young people, because it's expensive for parents to have to send their kids over to the mainland, or even from the north of the state to the south. I think we could see the potential benefit of tourism in this state, and I think provision of recreation facilities and control of the environment was important. Particularly after the war, I think some of us had a different view on the environment to some of our predecessors.
	How do you mean?
10	Well, I can recall, for example, roadworks in the past. The roadworks department would excavate cuttings and dig borrow pits beside highways when they were building them, and never bother to re-grass them. And I remember in the Flood Protection construction, one of our members objected to putting loam and grass on the levees until it was explained that if we didn't do it, they might erode with the weather.
	Wash away?
	Wash away. I think this was a fault of some of the earlier engineers, to look only at the pure engineering aspects, and not at the social benefits.

11	But in the later - in my experience with the hydro works on the West Coast, with the younger engineers in charge, plastic ribbons would be put along either side of any road construction, and woe-betide any plant operator who crossed that line! There was a very strict control. Just one individual with a bulldozer could do a lot of damage by driving off into the bush and changing his oil, for example. Those sorts of things were not done any more. The mining industry, where it used to be that a mine would run out and they'd leave their rubbish and their sheds about just to deteriorate and rust. That doesn't happen any longer. And I think that, to my mind, that happened shortly after World War Two, we seemed to get the younger group of engineers coming in.
	You don't think it was, sort of, the Green Movement?
12	This was long before the Green Movement. I think the Green Movement jumped on the band wagon and got tied up with a lot of ratbag elements with them, and have in many ways disgraced themselves. But I think a lot of these things will evolve just by the community in themselves. We're all environmentalists in our own way, but we perhaps need a bit of a reminder occasionally.
	It was coming?
	It was coming, and they jumped on the band wagon. I think the other thing that I found satisfying was the way Authorities took a closer view of the health and environmental benefits on the River Tamar. Where we were concerned with the sewage pollution, for example, from the health angle, but quite apart from the health angle, just from the fact that it was just not - in this day and age, not a civilised way of handling things. And it's very satisfying, at my late stage in life, to see these things now coming to fruition; and they were started a long time before the radical movement jumped on to it.
13	*It was partly because Launceston, Northern Tasmania, it was a more intimate and networked community. Where, you know, as you were saying before about the yacht clubs and things, people would find out, because they were in different organisations and be able to lobby. Incidentally?*
14	No, I think it happened everywhere. I think it was certainly an Australia-wide development. I think Europe cottoned on to it considerably earlier in many ways, because of being a denser population. I think I was bought up in an era when development was a good word. Everything in Australia had to be 'Get in and do it', and to hell with... You know, as long as you put in a mine, or whatever you did, you did it. And I think just the fact of our population increasing, our population having more time for recreation. I think the experience that people had of travelling overseas and seeing the damage that had been done when these things were not been controlled. I think it was a natural evolvement, and was happening; but it certainly has been given the force of legislation now, to insist that these things happen... Which is a good thing as long as it's not taken too far.
	Talking about recreation, was the PLA involved in any... Could they, if they had wanted to, establish any parks or recreational areas around the estuary foreshore? Was that, sort of, part of their responsibility?
	Well no, it wasn't part of it's responsibilities; and other than building jetties and boat ramps, it didn't involve itself in it.
	But what about, say, using the Flood Prevention Scheme as a recreational...?
15	Well again, I think, for the Flood Protection Scheme, we were purely a contractor. And while consideration was given to the aesthetics of the scheme during its planning - and of course the City Council was represented by the City Engineer on the Authority - I think where ever we could the scheme was designed to be, as much as it possibly could, to be pleasing. But as far as the Port Authority was concerned, it's role was really technical and as a contractor. On to the other one, I've got some observations of what I found....

	You haven't mentioned Monds and Affleck?
	Well, Monds and Affleck, amongst other activities, I was a director of Monds and Affleck, or HMA Limited, which was a Northern Tasmanian flour miller, basically. It had interests in motor car agencies, and a few other business activities of that nature.
	Was that Tasmanian?
16	That was a Tasmanian company. It imported wheat and it's been milling wheat in Launceston. It bought out Gibsons in Hobart, and it provides feed for the Atlantic Salmon industry when it started and provides stock feed. And I was invited to join that Board, where I sat for a number of years. And again, it was not a particularly engineering - far from engineering operation - but I was invited, I suppose, because I was also involved in directorships of other commercial operations and businesses around Tasmania. And again, a very satisfying and broadening experience in a different field.
	And did you pursue your, or keep your small consultancy company going during that time?
17	Well, I kept that going up until, I suppose, ten years ago. I found that my work was mainly in the marine work; and I found that with increasing technology, I would never take on a job unless I had a - co-opted a thirty or a thirty-five year old young engineer with me, who understood the modern technologies. And I'd come up with an estimate, and he'd come up with an estimate, and we'd... I'd use my experience, and he'd use his numbers and his computer. But I found that you get to a stage where unless you're in these things full-time, technology is advancing so quickly that I think once you reach the age of early seventies... I had a fear of becoming a 'silly old bugger', and one has to get out of these things before someone kicks you out. But again, it was an interesting operation.
	You wanted to make some general observations about an engineer's career?
	Well, I think I'd like to - I've described already the sort of activities I've been involved in, but I think I had the benefit of working in the era where development was a good word. Projects were undertaken without too much nonsense. I think we had to be practical, we had to be innovative. There were no mobile cranes, there were no concrete trucks or helicopters in those days
18	. Our communications were pretty primitive. I can remember visiting the Snowy Mountains Hydro Electric Scheme, where there was virtually no connection of their phone system to the outside world. They had about four different phone systems throughout the works, because that was all they could get at the time. Those major works were going on under those conditions. I think cable ways, concrete batching plants, sawmills were all built on the job. You couldn't go and buy them off the shelf.
19	At Burnie, before my time, the cranes at Burnie were - for building the breakwater initially, in the early nineteen hundreds, was a hundred tonne crane which was designed and manufactured entirely in Northern Tasmania. The cement was all imported from Europe in barrels and taken - not all that long ago, I remember driving from The Steppes through to Arthur's Lake, where I came across, in the middle of the bush, a whole lot of wooden barrels full of hardened cement, which had obviously been used on the Arthur's Lake development way back while cement had to be imported. Our survey parties around the hydro electric scheme in Victoria, where I was involved for a short time, were serviced by pack horses. I think that indicates the sort of interesting era that I was brought up in.

	The Chief Engineer, or the City Engineer or the Resident Engineer on the jobs, he was the boss. He was the acknowledged and the respected boss of their particular projects, and you'd look at people like Sir Allan Knight and Sir William Hudson in the Snowy Mountains, Bradfield on the Sydney Harbour Bridge - they were the boss.
20	Most engineering organisations, such as the railways and the roadworks and the hydro works were managed by engineers. I think it's a profession where you can't achieve much on your own, it's heavily dependent on others, from the site labourers through to the professional technical advisers. I think it's a team operation, so people management is essential. To be successful I think an engineer had to be a good 'people person'. He had to have a real interest for the industrial relations and for the public relations of an operation, and in the men, the people who worked for him. I think there is an immense satisfaction in nurturing young trainees, who often did their courses at night study and part-time study. And some of the numerous numbers that I was responsible for with the Port of Launceston Authority ended up as quite senior engineers in port authorities throughout Australia, and through consulting engineers operations throughout the world. And I think that gave a lot of satisfaction to engineering activity, provided you keep a broad knowledge of what's going on, an interest in what's going on.
21	And I also believe that public relations in major engineering works is just as important as the cement in the concrete. I'm a little bit concerned at the present day of the profession developing a stuffy image, not unlike accountants. I think it's losing its identity by using titles as technical managers or directors. I've always taken a philosophy that whatever job I was involved in, I let it be well known that I was an engineer. I think a lot of our senior executives are engineers as trained, and I think they should use that fact and advertise that fact, because it shows that there is a broader scope than the pure, detailed engineering.
22	I think engineers should become involved in the policy areas as much as they can. I think ultimately decisions are based not on engineering alone, but on a lot of other social and economic factors. And I think the only way to have an influence on that is to make an effort to be involved in that policy decision making, by seeking directorships or membership of policy making Boards, and that's where the decisions are made. I think these things tend to go in cycles. I believe the "bean-counting" era is coming to an end. I see that when you look at some of the failures of some of these commercial operations by dicey accounting procedures, I think they very soon will have had their time. I think travel is very broadening and I think all engineers should endeavour to travel as much as they can, to see what is going on in other parts of the world and to bring it back here....
23	My observation of successful engineers, I think they - most of them achieve their reputation more by hard work and common sense and persistence, than perhaps academic brilliance. Invariably they've got broad interests. They've certainly got interests in the economic side of things. I think they've got interests in the people who are working with them, and I think - and it's taken me perhaps a lifetime to learn - but I think an interest in cultural activities, too, is terribly important, to really understand the effect of the work you're doing.
24	I think it's pretty important to remain in good health, and I think strong family support is important, because it's not a nine-to-five job, and your family has to contribute a lot to absences from home and out into remote areas, perhaps. I think I had something else there... I think I've ended up by saying that my general philosophy is that engineering is a satisfying and a noble profession. I think it will remain so only if its proponents work hard at it in the broadest possible context, and involvement in the whole range of economic, social, PR, industrial relations and environmental issues related to, or affected by their projects.

	Can I ask you to elaborate on a few points there?
	Yes.
25	*The cultural thing you mentioned, why do you say that, and what things did you do that interested you culturally during your working life?*
	Well, I'm afraid not many things. No, I'm saying that I see this as a philosophy that I've learnt, that I find that I now am a bit tongue-tied when I get amongst some people who have got a cultural background. And the more I see, and the more I read of some of the successful people, they have got an outside cultural interest. My outside interests were in sailing and carpentry, and almost engineering-type things. And if I've missed anything in my career, it has been perhaps an interest in culture. I couldn't tell the difference between the tune of 'God Save the King' - the Queen, I'm sorry [laughs] - and some other music. No, it's just a point that I have noticed in a lot of senior people with an engineering background, who have been successful, they're also - without putting on airs and graces - they also have a genuine interest in music or in things of that nature, which I admit I haven't got.
26	*You mentioned before about your woodturning...*
	End Tape: IEA.EHA:PM 2, Side B

	: IEA.EHA:PM 3, Side A
Time	***Question* / Response**
	Peter MacFie interviewing John Keith (Jack) Edwards at his home in Launceston on the 20th June 2002.
00	*It seems to me, commenting that what you were saying before, Jack, that some times it has struck me over the years that engineers, a bit like historians, hide their light under a bushel a bit, and are not all that good at promoting their own profession, in a public way. Do you think that is a fair comment?*
	I am sure that is a fair comment. I think in many cases we can't be bothered with it. I think we are more interested in getting the things worked out, and the detail, and in getting the job done. Yes, it seems to be against our nature. You sometimes see publicity for some prominent councillor who sort of opens his mouth before he thinks, or he couldn't think anyway, and you think it is no use getting in an argument against him. You will never convince him. You will stick it. You will do what is right. You know what you are doing is correct. It is a failing, but nevertheless I think there are certain attitudes with technical people.
01	I had a very good experience with Sir Raymond Ferrall, with my chairman and myself, and he used to say to me, my chairman would say to me "I'll answer any of these political questions, because they know that I don't know what I am talking about. If it is an engineering matter." He said "If it is an engineering matter, you talk about it, and you are respected for that. Don't damage that reputation." And I think that was wise counsel. I find it, as an engineer, terribly difficult to talk about something that I honestly know nothing about. Whereas a lot of people can talk about anything, and I think that is one of the things that inhibit engineers from perhaps talking. But it is probably not a bad thing. It is a bit like a medico. A good medico will only talk about something that he does know something about. Unless he joins into 'Doctors for Forests' or something like that.
02	But generally speaking, you look at people like Sir William Hudson of the Snowy Mountains Authority. He put great emphasis on public relations. For example, you used to see signs by these public authorities, printed on a bit of calico with the secretary's signature on the bottom which you couldn't read anyway.

	Hudson was one of the first people in Australia to have blue and white signs around their projects with some technical information on what is being done. He'd go to great lengths to invite people to come and have a look at the construction works. Where prior to that, engineers would say "we don't want anybody coming and getting in the way."
03	He realised that if he had to get the politicians to agree to anything, he had to get the public on side. I recall my experiences with public relations. We used to find that say building a boat ramp, or building a jetty for the local yacht club and doing it on the cheap was far better public relations than putting advertisements in a magazine saying how good you were. So while I am talking about public relations, I mean you have got to genuinely feel that you are doing something for the public, and you are letting them see what you are doing. But a lot of engineers, and not only the older ones, "That is not any of our business" but I think it is. Because it makes life much easier if you have got the public behind you.
	I think the public can see that you are part of the community then rather than just outside, and not just a remote sort of specialist.
04	That's right. And you will look at it from their point of view. I always remember being told by Murray Heffernan who was the resident engineer on the Trevallyn Power Scheme – and we had had some arguments about the standard of the mud, the effluent they were putting into the river from dredgings. I remember him saying to me "You have always got to put yourself in the other bloke's position." And he was a gentle sort of a person, but I have always remembered that. That you have got to respect the other person. And I think that message gets through.
	I think advising the public of what you are doing, even if you have got a problem. I was fortunate in harbour works, if you made a mess of something it was generally 30 foot underwater and nobody else saw it, but a lot of things were obvious to the public, but as long as you anticipated the letters to the editor criticising what you are doing, if you can get in ahead and say "Well look, we made a balls of this, but we are correcting it", generally you will get sympathy.
	Can you think of an occasion where that sort of thing happened? Where you had to negotiate with the media over a particular issue?
05	Well, we had difficulties when we were doing the Garden Island project, where there was a lot of heavy blasting being undertaking.
	Where's Garden Island?
	Garden Island is near George Town, and we were getting complaints from one particular woman all the time about cracking her plaster and so on. And we had gone to a lot of trouble to analyse the problem. You know, that it couldn't possibly have been that. But then we spent a lot of time going and seeing this, having somebody go and see this woman and be there when an explosion went off and measure the vibrations, and she could see that we were taking it seriously. Well then we found that for some reason, instead of there being one shock wave going through, just by the geology of the ground, the shock wave was going through the water to Georgetown. Another shock wave was going through the clay underneath, and for some reason they were intersecting right under her house, and she had a genuine grouch. Well, we admitted that, and we altered our procedures and fixed up any cracks that were there. But I think to just take an interest in it was important.
06	I had another case in the same. I had quite a character of a foreman. He had a good connection with the community generally, and he sent me in a report one day that he had been around checking on these explosions when they went off and the best way, he said, to find out was to take his shoes off and stand in his socks on the floor. And I got this message back, this report from him, to say that he was standing in Mrs So-and-so's bedroom in his socks when the earth shook. [Laughter]

	Nevertheless I think the important thing is to accept that people have got legitimate gripes. Sometimes they haven't, but if you concentrate on trying to help them and then prove that either they're wrong or you're wrong. That's the sort of public relations I am aware of. Or you consider before hand what effect your work is going to have on them.
07	Again, if I can quote the Flood Protection Scheme, we had our levees in the Invermay area going though quite a number of old Invermay homes, and these places had to be acquired. And we had as our secretary of our Flood Board a man named Charlie Munden who had been the secretary to the Port Authority for something like 50 years, and a very genuine person. And he went around to all these houses individually. These were water-side worker's families and people like that, and he not only negotiated what compensation would be given to them, he went to the trouble of helping them find another home to move to. He actually helped them get removalist and this kind of thing. It didn't cost anything. It was just his nature. I think it was twelve or fifteen houses at least. Perhaps twenty, and we had no trouble what-so-ever, but you imagine these days trying to do that. And it is just those little things of understanding what, if it was you, what would you expect the public authority to do.
	To do the right thing.
08	To do the right thing, yes. And sometimes you will get public authorities that will grizzle about the last couple of dollars and they will spend a thousand dollars defending themselves. Which is just rubbish. In doing that we found you didn't need to go to the press to support you. Generally, again, if you were doing a project you would get hold of the local editor and say "Well, look, can we go and talk to somebody about what we are going to do. Now, if it blows up and something goes wrong, you know the background. This is why we are doing it. We don't like doing this, but we have got to do this."
	You find then, if it does blow up, immediately you are getting both sides of the argument. As I say, it is as important as the cement in concrete.
09	*How do you explain or encourage good staff relationships, especially in the last ten years. This highly competitive sort of formal employment. On contracts and whatever? I think there is a lot of lack of trust amongst staff today. A lack of openness of the sorts of things you are saying worked in your earlier life.*
	I worked in an easier era. I could go and have a beer with a union rep. Try and sort something out, or just to do it socially. I think people had a career, almost for life. You weren't changing jobs all the time or they weren't nervous about getting sacked because the company was taken over by somebody else. Construction workers were different because they knew that a job was coming to an end and that they would be paid off. And as long as you did the right thing by them, and they were perhaps a little bit more militant than the others.
10	But just to do little things that perhaps don't strike you at the time as important, but we had a man – a carpenter – worked for us at Bell Bay, and I just said to the foreman "Where did you pick him up?"
	"Oh he used to work with Hydro at Butlers Gorge."
	So I was just walking round the job and I said "Good day Bill, I believe you were up at Butlers Gorge?"
11	"Oh yes", he said, and so he told me all about Butlers Gorge. It didn't mean anything to me at all. Now, a foreman told me twenty years later, he said "That bloke thought I was the salt of the earth, because I had taken an interest in what he had done. And it is only little things like that, that don't cost anything.
	And I think, put yourself in their position, they feel as part of the team.

	I think the other thing that is important is delegation of a lot of our work. A lot of work I was involved in, a gang, a small gang of men would be out pile-driving in the centre of the river or they would be out in a boat or they would be remote from the office. In those days, before radio telephone contact, and they would come up against a problem and they wouldn't quite know what to do, and they would think "Oh we'll do it this way." And when you would go and see the job, you'd say "Oh gee, that was a good decision." And they immediately felt "Oh gee, we are respected. We are appreciated." I think that is just the sort of small things that are terribly important.
	Being unafraid to pay a compliment?
12	Yes, well it doesn't cost anything to do it, and it is not… I mean, you mean it. I think that is another important thing. You can't do it superficially.
	Can you remember any people apart from you mentioned Ray Ferrall. Other people who have been influential in your life? Or have convinced you of their worth as human beings, over the years?
	I can think of quite a lot. I've mentioned Len Turnidge. I've mentioned old Bill Heart.
	You mentioned them in relation as their engineering skills, but what about as people?
	Well as people I think old Bill Hart as an engineer was a real character.
	He was the gruff one?
13	Gruff, yes. The other ones were master mariners and pilots. I had a great respect for them because they were people who had to make decisions on their own, and it is not easy for a pilot to go out in rough seas. In the middle of the night, in a little boat. Climb aboard a ship they have never seen before, and pilot it into a fairly tortuous channel. Haven't had a chance to get the feel of the ship, and they have got sole responsibility and they have got to make the decisions on the spot. There's no committee to refer to, or anybody else to consult. And they developed a certain sort of an independent attitude.
	Sir Allan Knight, as I've mentioned, I had a great respect for, and Gordon Colebatch who you may have known as the Chief Civil Engineer of the Hydro. Again he had pretty brilliant wartime experience as a practical engineer, dealing with men and so on. And he was really behind the major construction period of the Hydro.
14	Another one that I have a very great respect for was old Sir John Williams, or Captain Williams. He was chairman of Australian National Line, but he had been brought up on sailing ships and during the war he did a lot of salvage work. He salvaged the gold off the *Niagara* in the middle of a minefield off New Zealand during the war. A fantastic man, and he was always the sort of chap who would say to you… He'd put his hand on your arm and say "Jack, is there a dollar in it?" He had very much a commercial instinct, but he had a terrific practical sea-faring background.
	I've got a book there of his. 'So ends this day' he calls it. Brought up in sailing ships, he always remembered. Telling us of the young apprentice who fell from the rigging on a sailing ship, and there they were, months out at sea, and they had to put him on the galley table and put a foot in his crutch and pull his legs back into shape. You know, that is the sort of experience that he'd had.
15	With contractors. While I've only had a passing acquaintance with Sir John Holland. John Holland Constructions. Again, the Gordon Colebatch era, has come through the war and then set up a contracting business. Warren McDonald was another one. A Launcestonian who was an engineer during the war. Jim Roche from Roche Brothers.

	They were really earth moving people, and did a lot of the basements of foundations for buildings in Melbourne. And quarrying. Quarrying around Melbourne, that sort of thing. Very practical people. Old Sven Haunstrupp, who was a Dane who was Haunstrupp and Associates. Initiated them. He came out to Australia as a qualified engineer. He started his life building concrete kerbs and channels by using a concrete mixer driven by his motor-bike jacked up and with a belt off the back wheel. He always tells the story of building a church in Broken Hill which he designed with his finger on the bar of a Broken Hill pub, by drawing the shape of the church in beer. [Chuckle] They were the sort of practical characters.
	Where did you meet?
16	Sven Haunstrupp was my brother's boss. He was with Haunstrupp and Associates.
	That was Jim?
	Yes, that's my brother up there. I think with the unions I had very pleasant associations. With Brian Harradine for example. On the opposite side of the table. Jack Nicholls was the Painter and Docker cove that I had arguments with but ended up with finding a solution. Arnold Currie who was the Builders and Carpenters Union, and also an associate commissioner of the HEC. Another one was the Seamen's Union, a bloke named Pat Gerrity. Invariably I was on the opposite side of the table to him, but we saw one another's point of view, and I found them fascinating; they brought you back to reality.
17	On the professional side, there was one, the chief engineer of the Port of London Authority, a bloke named Wilson. He was very helpful to me, and I think he suggested that we do this monitoring on the river because the Tamar is not unlike the Thames. Very much, even the names of reaches and so on, but also the general geography of it. And it had a very serious pollution problem, and he gave me some good advice on that, and I respected that, and I learnt from him.
	When you did those overseas trips like that, did you write a report in some way that it is in the public record, those observations between the two rivers.
18	Oh yes. I've got a heap of papers. I used to keep a diary of every trip, and I would shoot them back to the Board to let them know what I was up to.
	The PLA?
	PLA Board.
	Would that be in the annual report anywhere? Is that accessible somewhere? Public, if someone wanted to look them up?
	Well, I suppose I've got them. I suppose the Port Authority has got them, well in the archives. There is nothing secret about them at all.
	No, it is just accessibility sometimes.
	You know, they covered the whole gamut.
	How long would a report be like that, after a trip? Would it be five pages, or ten pages?
19	Quite a voluminous thing, because I would include sketches and descriptions. Technical descriptions and so on. I'd invariably spend a lot of time going talking to Rotary Clubs and people like that about trips. That was part of the PR exercise. And Lion's Clubs and so on. That was a pretty regular part of it, and I think that was important.
	No, I have been very fortunate. Just the relationships that I was able to get. With senior people in BHP for example. Sir Ian McClennan I've mentioned, and there was another one. Bill Sweetland. Jack Richards. Senior people in BHP who could do things. You know, make decisions. Eric Neil. Sir Eric Neil with Boral and I got a little bit with the bank. Locally. Sir Geoffrey Foot, who used to be…

	Was he MLC?
20	He was the MLC. He was the chairman of the Hydro for a while, and we'd head off to Hobart together and he'd end up the expert on engineering when we got there, and I would end up the expert on accounting. You know, we'd compare notes with one another. But no, continually dealing with people of that nature. In the Tasmanian government, Ken Binns was the under-treasurer. I had a close relationship, well a good relationship with Ken. Through PLA and through the banking operation, and both liking Scotch whiskey. Eric Reece I had a great respect for, and I got on well with Robin Gray. I knew well, but not politically. I am not interested in politics. Harry Holgate, Neil Batt, Roy Fagan, Bob Sharp. I don't know whether you remember the name of Bob Sharp as the Director of Public Works?
	No.
	He was a very politically astute engineer, and he taught me a lot and he knew how to get his projects approved. [chuckle] As Sir Allan Knight would.
	Diplomacy?
	Yes, diplomacy.
	What were the secrets?
21	Well, I think putting an engineering technical subject into lay terms, I think is terribly important. I was speaking to one of our local aldermen last night and I was complimenting their engineer here, who now calls himself Technical Manager or something, but he apparently when putting over any project to the council, he had got a way of explaining it to them in simple terms, or lay terms. But the worst thing you can do as an engineer, and I've seen it so often. They will come along to a board meeting to give a report and they will try and blind everybody with science. And you can see people immediately shut off.
	Fall asleep?
	Yes. Not so much fall asleep but bang, they just cut off. I think as an engineer you have got to respect that you don't know it all. That somebody will say to you "But what about so-and-so," and you will have to admit that you never thought of it. A simple thing, and I think I found that in dealing with a lot of these senior people that they are able to do that.
	The common touch, they used to call it.
	Yes. The BHP people, as young cadets with the organisation, they used to work on the blast furnace floor. They used to work in the plant, and they got a feel for dealing with people and knowing what it is about.
22	*Management styles seem to have changed a lot. Which is what you have been saying in your own life. It seems to me now that in those days you felt a responsibility down to your employees as supervisor as well as to your superiors, but today it seems people are only conscious about who is about them. That's the impression I get.*
	I don't think that is wholly correct. I think there are certain ones who have a genuine interest in both ways. I think the ones perhaps who are insecure are the ones who are worrying about the ones who are up top.
	Looking over their shoulders?
23	I must admit I wouldn't like to have to work under present-day conditions, with a lot of the filling-in of paperwork. For example, me having to sign that clearance thing, for this. To me, it is crazy.
	You wouldn't be doing it if you didn't want to be doing it.
	No. I remember, the sort of thing that impressed me. Again this is about the early 60s I think.

	I went to a place called the Baltic Exchange in London where they did all this trading of shipping, and it is a great big cathedral-like building, with all these blokes getting around with clipboards. All young people, you know, in their late '20s, and most of them were talking about cricket, most of the time. But then one of them would say 'Oh, I've got a cargo of oil in Kuwait, and it has got to go to Alaska.' And this other bloke said 'Well, I've got a tanker such and such', and they would work out a deal, and shake hands, and that was it.
24	And admittedly this was all supported - like the stock exchange - by formal legalities, no doubt. But it was done by the shake of a hand. And nobody worried about the crew that were all expecting to get home to England for Christmas, and they were going to Alaska instead. But it was just typical of some of the things that could be done, and I used to find again with contractors, if you had a good reliable contractor you could do things by word of mouth and you'd stick by it. But now we've become over-legalised, I think, with a lot of these things, because of there being a few shysters in the operation. And we've got to be protective of ...
	Everyone wants the legislation to be this, that and the other, don't they?
	Yes.
25	*And it's a shame. [Nothing's left on that side.] The other thing I was going to mention was how many of these people would you say were colleagues versus friends? In the sense that in one's professional life you tend to meet a lot of people, and you can get along well with them, but it doesn't mean necessarily that you're going to socialise with them, if you know what I mean.*
	Yes. Certain ones you end up with a long standing friendship. Others you realise have only been cultivating you because it suits their particular operation at the time. I've got one in particular, Alan Curry, who was the Chief Engineer of Roche Brothers. We still see one another regularly, we correspond, he calls in and sees me here, I see him in Melbourne. That's one we talk the same language, and it's carried on. It's a bit the same, I find, with people who've worked on a job. I haven't got a close relationship - of course a lot of my closer ones have carked it now; about my age you see, and they've gone - but if I meet any of our foremen or workmen in the street, we'll have good yarn. A couple of our old foremen in particular.
	Do you have any reunions or get togethers?
26	Well, we tried to get a reunion going, but I think a lot of us found it was a bit artificial.
	You don't have a project on, or anything.
	Yes, it wasn't a genuine thing. I think we all got together at Sir Raymond's funeral service, and everybody said, "We must get together". And I made a list recently of the surviving members of our old PLA organisation, and came up with about a hundred and fifty. Everybody's going to do it, but you don't do it, and... But I think what I do find when I do run into them, some of the little things that I find fascinating, one bloke said to me, "Gee it was an interesting time when we were all working together". He said, "I used to look forward to going to work on a Monday morning". And I took that as a compliment.
	PM That's a good sign.
	And I think a lot of the Hydro people were like that, they were really...
27	**End Tape: IEA.EHA:PM 3, Side A**

	: IEA.EHA:PM 3, Side B
Time	***Question* / Response**
00	*You were saying you met a Pole?*

	I met this - I think he's the local representative of the local Polish community here, and there are a lot of them. Every one you meet, they've always at one stage worked for Hydro, because they came out and worked as displaced persons with the Hydro. And they've always got such a great interest in the people, the engineers and the people. This was before my time at the Hydro. And they developed - with Colebatch and Knight and these others, Guy Ward was another one - they had a very much a hands-on and a people relationship attitude.
01	*Yes, I think that's true. It was also, I think, in the older Australian tradition, there seems to have been... I suppose there was a class system in our country, but it was also more give and take in a way, and also there was more a mobility. Well, you're a case in point really, aren't you? Your father was a baker, I think you said, and you ended up in senior positions in the outfits you've belonged to. And that seems to be harder to achieve these days, and I don't know what's caused that. Anyway, that's getting off the point a bit, but you did grow up, we grew up, in sort of fluid sort of culture, which was good.*
02	I think too - in my case I know that I wasn't aware of it at the time - but I've got a sister who died at 94 just a few months ago, and she remembered all this, and she used to comment that my father ran a business in Kalgoorlie just at the end of the gold rush, in early 1900's. And my mother went across to get married, and crossed by ship all the way from Gisborne, Victoria, to Kalgoorlie and they lived in a hessian house. You know, they had it tough, and he apparently had an attitude that he wanted us to get educated.
	This sister of mine was 14 years older than I am, and she was a kindergarten teacher. But she got the advantage of education. In fact the family moved from Gisborne to Melbourne so that she and my brother could get education. It was never made known to us, but it must have been a struggle for them to allow us to do it. I think they could see, you know, what the future was without education. I don't think it matters much how you educate. I've got one of my kids - I mentioned my oldest son is a plastic surgeon in Hobart, the other one is a sales manager for William Adams in Victoria. They're not interested in engineering, but my grandson has done engineering, and he's now graduated and he's in Sydney working with a consultant. So there's something in their genes, I suppose, that comes through.
03	*Do you know anything about your grandparents, going back the other way? To say as to whether it's gone back to where it started?*
	No. My grandparents, as I say, on my mother's side, he was the one who was - he was a saddler too, and he was with Burke and Wills. And my grandfather on the other side was a baker, come out from England. But he was a - I've got some information on him. He came out as an unassisted migrant to Melbourne in 1860 or something. But no, there's no great history of engineering in our family, excepting, I think, our whole family's sort of fairly practical, hands-on people. I've never claimed to be a good engineer. But I don't think that matters. I find, if you understand, having had an engineering training, you understand the basics of what engineering's about. Particularly civil engineering, where you can't be an expert at everything. And you find if it's a drilling job, you've had no experience of drilling yourself, so you go and get a drilling contractor to do it.
04	I think a lot of it is in coordinating people, but knowing enough about the basics to know whether you're being taken for a ride or not, and if you're getting the right information, and you're doing the right thing. And yet, one of the benefits I found in coming to Tasmania initially, that you had to do things yourself, because you couldn't get contractors here and you had to make things yourself. We used to do prestressing ourselves, and we rigged up gear that we'd only read about, and improvised gear. But now you'd immediately get a specialised contractor in. And I think that was one of the advantages. We had to improvise, as I say, you didn't have heavy lift cranes and all that sort of thing. You got a tree out of the bush and just stuck a pole up, and got a few crab winches and a few blocks and tackle, and you did it.

	Were you a member of the Institution of Engineers years ago?
05	Yes, I've been a member for sixty years, I think. 1942 I think I became a member, a student member.
	And how - just thinking about Sir Allan Knight's bridge down near Kingston there, how would an engineer in Victoria have found out about an innovative design?
	That's the one with the integrated slab and steel girders.
	PM When did you first hear about that, and how would you have found out?
06	Well, I heard about that. In about 1943 one of my first jobs with the Country Roads Board in Victoria was checking a bridge such as that, was a bridge across the Maribynong River. And they were transporting very heavy barges that had been built for army use. These barges were carried across on a low loader, and I had to get under the bridge with a whole lot of measuring gear to measure the deflection. And this was early in the piece. The bridge that Allan Knight did would have been when, 1940's?
	Yes, about 1940 or '41. [Actually 1932-Ed]
07	Well, this bridge was the Lynchs Bridge, I think they call it, across the Maribynong River, on a main part of Melbourne's system, road system. And it had these steel girders with the integrated stirrups and the concrete deck, and obviously it was one of their first designs of this nature, and they were concerned about these loads going over which were beyond the design load. And our job was to measure the deflection of each girder across, to determine whether the bridge actually performed as it was designed. So they must have adopted that design pretty soon after. But it became a very well recognised design.
	The other innovative bridge, when I did some work for the Engineers years ago, taking photographs, and one of the other bridges that survives and is still being used is the one up near APPM.
08	The one with the arches? Strangely enough, I went through there some years ago, and they'd taken the braces out of the top. Because there were two arches, remember, and the diagonal bracing across the top. And with the high loads of containers going through, apparently they got in the way, and they just cut these out. I was on the Queen Elizabeth Jubilee Trust with Sir Allan Knight, and I said to him, I said, "They've cut the braces out of the top of your bridge in Burnie". "God!", he said, "They shouldn't do that". At any rate, it's still there. But they're the sort of things that happen, you know.
09	*Must have been well built if it didn't need that and still survived.*
	Yes.
	Well, that's good. And they were two of those early concrete, as you say, integrated concrete designs that have survived. You didn't do any bridge work again in Tasmania, though, did you? I don't think, from what you've said.
	I did the Charles Street and the Tamar Street bridges, yes.
	Sorry, yes. But didn't you say you're brother was involved?
	He designed them and I was responsible for the whole thing.
	Were you?
10	And then I got him (Haunstrups) as consultants, and they designed them. Charles St is now nearly fifty years old, and it's still standing. But that was pretty conventional. Well it wasn't, it was one of the early stages of pre-cast bridge construction, and we, to a large extent, copied what the Country Roads Board were doing in Victoria.

	But PWD hadn't sort of latched onto this pre-casting, they used to go and set up a camp on a site, and they'd be there for months and months building things the old way, you know. We had the pre-casting yard here for all our concrete pile manufacture for down the river, so it was easy for us to just pre-cast everything.
	Right. That became more of a standard approach from then on?
	It has. You know, look at all these freeways now, these bridges around Melbourne.
	I mean in Tasmania, sorry.
11	Well yes, they set up their own pre-casting yards, I think. And used us occasionally to make the beams for them. But now they've got a good contractor at Ulverstone. Can't think of his name, a Dutchman [Van Ek contracting- Ed]. And he's doing a lot of their bridges by contract, and to a very high quality. Much better, much better appearance quality than we did. But our bridges were pretty good engineering-wise, but there was nothing aesthetically beautiful about them.
	Functional.
	Functional. The Tamar Street Bridge, for example, the appearance of that is not beautiful because the hand rails had to act as part of the flood levee. So that when the, if there's a high flood, you're actually driving through below the water level. With the hand rails to keep the water out.
	They again had to be functional, rather than just aesthetic.
12	But when you look at some of the older bridges which really have, you know, a beautiful appearance. And some of the newer bridges. The Narrows Bridge in Perth and the Gladesville Bridge in Sydney.... very attractive looking concrete bridges. But now, when you look at the freeways and so on, they're just part of a road, really.
	Yes, they're mostly fairly unobtrusive, they don't make a feature of them. In one time bridges were seen as something to be....
	Beautiful.
	Yes, boasted about.
	Well, Batman Bridge is a case in point.
	True, yes.
	I don't think you'd call the Tasman Bridge beautiful.
	No, I suppose it's... I've sort of had mixed feelings about that. In a way it suits the river, I've tried to imagine how a cable bridge, you know, a -
	A suspension bridge.
13	*A suspension, a San Francisco style bridge might have looked there, and I think it probably would have been a bit too imposing, if you like. But I don't know what you think, how does it strike you? As an engineer?*
	I suppose... the difficulty of the terrain in Hobart, it would have been difficult to get the elevation for a suspension bridge.
	Without ruining Government House.
	Without ruining Government House and all the rest of it. No, Shirley often calls the Tasman Bridge 'The Dinosaur'.
	Why's that? Looks like a centipede, or something, doesn't it.
	Yes.

	What do you think about the old bridges, the old nineteenth century bridges here, do they appeal to you?
	Well, yes they do. There's a great fuss about the Ross Bridge at present, you know? But there's been a lot of work done on the bridge at Campbell Town recently, to strengthen it.
	A lot of hidden work has been done.
14	It's hidden, you can't see it. My concern there is that a bridge of that age, no matter what you do to it, how it's going to hold together with all this heavy traffic. B-doubles and what have you. And also you've got very narrow footways on it. Anyone going across with a pram with a B-double going past - not so good. But they're very attractive, there's no doubt.
	The material themselves of course lends an attractiveness. Brick in that case, and sandstone. We've had problems with the Richmond Bridge, as you probably know.
15	Yes. If you look at some of the European bridges. I don't know if I have a picture of this, some of those bridges in Switzerland and Austria and so on.
	PM Note from Peter MacFie. Jack has got a number of photograph albums starting from his days in Victoria, of bridges and roadworks. A huge creek bridge over Goulbourn River. Started work on the Burnie pier, and also at Bell Bay. Very early works at Bell Bay. Good, sharp black and white photographs.
	Some additional comments you'd like to make?
	To include in the...?
	Yes.
16	Particularly the PLA operation, one of the major improvements of significance to the port was the Lower Reaches Channel Improvement, which was the rock dredging from Low Head through to Bell Bay. And included in that was a very interesting construction of Hebe Reef Beacon, under very exposed conditions at the mouth of the river, on a reef which is notorious for causing problems. The latest being the *Iron Barron* in about 1998. We constructed - access to the reef was very limited and difficult, but we built a light and radar reflector in the form of a small lighthouse in the 1960's, which was pinned to the rock with rock bolts. And at this stage, forty years later, it is still there. I should also mention some emergencies and salvage work, which is so common to harbour works. In the 1960's we had the *King Islander*, a small roll-on, roll-off ship in the graving dock for repair-
	In Launceston?
17	In Launceston. And had plates off the bottom of the ship, and a very high tide occurred, not affected in any way by river flooding. Which, at two o'clock on a Sunday morning, over-topped the dock wall, and sank the ship in dry dock while the watchman was still asleep. A convenient place to sink a ship! Another occasion was a tug, a new tug -
	Excuse me, how did you repair it, how did you resurrect it?
	Well, it was easy to do, because all we had to pump the water out of the dock, and it was just the water damage to the ship. Because the ship, the *King Islander* settled back on the blocks and work proceeded.

	It didn't affect the motor?
18	Well it did, it affected the engines and electrics and what have you. But this was a quite unusual combination of the spring high tide plus a very low barometer, and there was no way of anticipating this, and it exceeded any previous recordings of that nature. In any event, the dock coping was lifted by a couple of feet to prevent it happening again. Except in the case of river flooding, when there would be probably two or three days warning. The second occasion was a brand new tug got tangled up with the propellers of an overseas ship berthing at Beauty Point, which gashed the hull of the brand new tug. Fortunately the tug master was able to get out of deep water, and she sank in about thirty feet of water on a shoal. On that occasion we obtained the service of Captain Williams and Captain Fant, salvage experts, and they assisted us in salvaging this vessel, which was repaired and carried on it's service for many years.
19	On numerous occasions, barges used for dredging and other purposes were sunk due to striking objects. Some of the hopper barges were built of Lowmore iron and were built in 1880, so were well past there use-by date, and their hulls were very fragile. But the lifting of these craft was quite difficult. One particular one at Low Head was full of rock, and it was rammed by a contractor's launch. And when we - we decided to lift this barge using compressed air, but unfortunately we failed to calculate that the air expanded as the barge came nearer the surface. And the result - the air expanded and blew off the decks, which immediately inverted the barge, which of course at the same time unloaded all the rock. And we ended up with a barge upside down on the surface, with several representatives of the media in attendance who asked, "Why has it come up upside down?" And my answer was, "We had to get the rock out somehow!" But that was a purely accidental situation.
20	Another more serious occasion was a new tanker. An Algerian registered tanker on her maiden voyage, with petroleum. Highly inflammable petroleum products. Lost it's steering due to a minor misfunction in the steering, in the electronic control of the steering gear, in negotiating the entrance channel. And she ran hard up on Bombay Rock, being severely holed and flooding aviation spirit all over the river. This required very cautious action. Evacuation of an old people's home at Low Head, plus very stringent emergency procedures. Fortunately we were able to refloat the vessel, get her to Bell Bay and make the vessel safe, but she then had to go to Singapore to be repaired after the petroleum products had been unloaded at Bell Bay.
	What year was that, Jack?
21	The year was probably about in the early 1960's. Two other occasions, the *Hemiglypta*, a bulk carrier -
	How would you spell that?
	H-E-M-I-G-L-Y-P-T-A. A Greek bulk carrier. Struck the bottom at Toroa patch, T-O-R-O-A, and on the falling tide it stood the risk of breaking her back. While standing on the deck, rust flakes could be seen to be flipping off the highly stressed deck structure. This was re-floated on the following high tide. The *Edgewater*, an empty tanker failed to negotiate the bend at Garden Island, before the island's removal, and ended up on Windmill Point. With her bow on Windmill Point. Again without serious damage, and was removed by tugs at high water.
22	Another interesting occasion was the old Bell Bay wharf, which was built in about 1927, and was ready to be replaced by a new structure. It had been attacked - the timber sub-structure had been attacked by marine borer, and over many years - or over several years, in reports to the Board, I recommended condemning the structure. But as it was a favourite fishing spot, the general attitude of the Board was drive a few piles and make it hang on a bit longer. This was done until finally the firm recommendation was made that it should be condemned and demolished. Within a couple of days, I had a phonecall from our foreman to say half the Bell Bay wharf has slipped into the river.

	My reaction was, get a crane and salvage some of the sheds off the other ends. And the response from my foreman, who stuttered, said, "It's t-t-too late, it's g-g-gone too". Fortunately, everything was prepared for construction of a new berth, which started immediately thereafter. I think that's about it.
	We might just mention, seeing we've got the mike on, about those two other things that the PLA was involved in. The Beauty Point Marina, which you did some...
24	The Pilot Station Two other items of interest, the PLA was interested in providing recreational boat facilities, and it had a dual purpose here, to endeavour to concentrate recreational activities away from the major shipping area, and a good site was chosen at Beauty Point. The marina was built to house about sixty small craft, and to form the marina, the barges used for reconstruction of the Tasman Bridge in Hobart were purchased and used as pontoons. The marina was a very successful operation, operated by the Port Authority for some years and then handed over, or sold to the Tamar Yacht Club, which continues to use it as a club facility.
	We'll go on to the other one in a minute, but did you do any other marinas at all in the river?
25	Not marinas as such, no. The other facilities were merely moorings and jetties.
	Any major jetties, like the ones down where the pub is down at Rowella?
	At Rosevears? I'm just trying to think whether we did that or not. Yes, I think the Port Authority did build another recreational jetty at Windermere, and I think one at Rosevears. But in more recent years these have been taken over by the local councils, and Business North organised construction of a number of pontoon jetties along the river.
26	The other interesting operation was provision of better boarding facilities for the pilot station at Low Head. The pilot station is a heritage facility, built in 1835, and is still used as an operating pilot station. But the pilot launch was moored off on a mooring, and the pilot would have to board the launch by a dinghy rowed out by the boatman, which, in bad weather and at low tide, was hardly a fitting way for a pilot to board a ship worth perhaps, with it's cargo, perhaps fifty million dollars. With a wet backside and the experience of having to board under those conditions.
27	Some efforts were made to build, or to design, a harbour to provide for berthing of the pilot launch, in a way which would not detract from the historic significance of the old pilot station. And we did this by... Firstly we investigated a number of small boat harbours we had seen around the southern coast of the UK, and also down the New South Wales coast south of Sydney. We believe that we have come up with a fitting facility which is consistent. A rubble mound breakwater and a pontoon berthing, which serves not only for the pilot launch for easy boarding and protection in all weather, but also as a shelter for pleasure craft waiting to leave the river. Or as a small marina-type facility for the residents of Low Head. This work was undertaken by Roche Brothers, the same contractor who undertook the major rock excavation at [Garden island]
28	**End Tape: IEA.EHA:PM 3, Side B**

	Tape: IEA.EHA:PM 4, Side A
Time	***Question*** **/ Response**
	Peter MacFie interviewing John Keith (Jack) Edwards at his home in Norwood, Launceston, on the 20th June 2002. *This is Tape Four, Side A.*
	Another difficult and interesting job undertaken by the Port Authority was the repair of the Tasmanian shipping line vessel, the *Straitsman*. The roll-on roll-off ship which sank in the River Yarra, Port Melbourne, due to opening of the stern door too soon before the ship had berthed, resulting in the ship flooding and capsizing.

	The ship was lifted, refloated by Captain J. P. Williams, who has been mentioned elsewhere and significant repairs, of course, were necessary. Plus the removal of some unpleasant cargo of drowned sheep in the lower hold.
01	The Port Authority won the contract to repair this vessel, and fortunately it just fitted into the William Hart graving dock in Launceston. It was towed across from Melbourne by the tug, the Port Authority's own tug and crew, after much resistance by the Painters and Dockers Union in Melbourne which involved some rather difficult negotiation until she was finally cleared. However the repair work was carried out speedily and efficiently, and resulted in some quite beneficial income for the Port Authority plus experience for its workforce. The *Straitsman* subsequently went back into service and is still trading, I believe, in the Pacific Island trade from New Zealand.
	How long did that take?
02	I think the repair work probably took about six months.
	Could you mention in detail about the Garden Island project, in the mouth of the Tamar?
	Well the Garden Island project formed part of the Lower Reaches Channel Improvement works, which were undertaken in the 1960's to allow access of ships up to and over sixty thousand tonnes deadweight to enter Bell Bay to service the Comalco, Temco industries and also the woodchip and the tanker; and the oil-fired power station and tanker berth. Garden Island, just close to George Town, was an island of some, I suppose, six hectares in area on the western side of the channel. And it was after a series of model studies undertaken by using a hydraulic model constructed by the Port Authority, enabled the engineers and pilots to determine how much of the island should be removed to provide safe access.
03	Once this was decided tenders were invited for contractors to remove the island, and Roche Brothers of Melbourne were the successful tenderers. The island consisted of fissured basalt rock over-capping tertiary clays, which were about forty feet or thirteen metres, twelve metres below water level. The contractor came up with the proposition of excavating the rock in the dry as a quarry operation, leaving a coffer dam around the perimeter which would be removed later. The basis of the contract was a fairly complicated one but a very satisfactory one, where various conditions of difficulty which may be experienced by the contractor were set out, and varying unit prices were established and agreed.
05	It was also agreed that the Port Authority would undertake de-watering of the excavation sufficient to enable the contractor to work, and the contractor's responsibility was then to do the excavation. If the Port Authority was unable to keep the water within reasonable limits, this would void the contract and require reconsideration. However the whole operation proceeded very effectively, the whole of the rock excavation was undertaken by conventional quarrying methods and removed to reclamation between the island and the western shore.
06	When the clay was reached at the bottom, the excavation proceeded in the same way; it was just a few feet. When that was completed the surrounding wall was breached, and the remainder of the wall was excavated by a large dragline excavator after the rock had been drilled and blasted. It was a rather difficult operation from the point of view of blasting, because it was in fairly close proximity to George Town. And considerable effort went into informing the public of what the effects would be. A monitoring system of the vibrations was set up right around the area and kept under control. But one difficulty during the course of the construction, the blasting, was that the shock waves through the water and the shock waves through the clay beneath travelled at differing velocities. And at one point intersected in the George Town area under one particular residence, which involved quite a lot of consideration and adjustment to control the blasting procedures.

07	However the project was completed very successfully, within budget, and it was a credit to the contractors the way they undertook the work and the way they cooperated. And this particular development was probably the most important aspect of the whole port's history in opening up the Bell Bay area to these large ships, which have been the mainstay, or absolutely necessary for the ongoing development of the industries within the Bell Bay area. For example Comalco, which started off in the 1950's producing thirteen thousand tonnes - sorry, eleven thousand tonnes of aluminium per year, is now producing one hundred and sixty thousand tonnes and is a vital part of the state's economy. Likewise, the woodchip industries are exporting in excess of a million tonnes a year, using fifty-five or sixty thousand tonne ships. And regular shipments of manganese ore and exports of ferro-manganese from the Temco plant are continuous, plus tankers that are providing the requirements of Tasmanian oil consumers.
	What depth was the island excavated to?
09	The depth of excavation was about twelve metres below low water, and allows ships of about - in the old language - about thirty-seven feet draught to enter at high tide. But the depth of water in the channel along side is up to a hundred and sixty feet, and it is a simple matter, should there be demand for greater draught, for these various isolated high spots to be lowered.
	It just occurred to me, thinking that - were you with the PLA when the dam was built, you know on the ...?
	Trevallyn?
	Yes.
	Yes.
	You would have had a fair bit of negotiation with the Hydro over that, wouldn't you?
10	Yes, although again it was mainly - our negotiation was mainly to assist in the dredging and alignment of the tailrace from the power station and the deposition of dredging materials. We didn't take a large part in any of the basic design of the scheme. That was mainly a Launceston City Council prerogative in determining the flow down the Gorge, because there was no concern from the Port Authority's point of view that cutting off that flow would have any effect on the river siltation, for example, because it was only a very minor part of the normal daily tidal flow. The tidal flow in and out, twice a day, provides volumes of water which would be hundreds of times the volume of the power station. But our main interest was in cooperating with HEC, undertaking some of the dredging and ensuring the dredged materials were properly settled out before the effluent was discharged back into the river.
	I recall as a young boy, there were a couple of fatalities involved in the construction there?
11	Yes, a bloke from Burnie. A bloke from Burnie was killed, wasn't he? An engineer, a young engineer.
	Yes, he was a friend of Dad's.
	Was he? What was his name?
	He stayed with my family when we lived up on the Glebe, when we first came to Hobart, and mum was particularly upset because he was a nice young bloke.
	Yes, we knew his parents in Burnie, and his sister was on the TCAE Board when I was on it. Not Tyson, no.
	And his body was found several days later, wasn't it, as I recall.
	Was it?
	[unclear]

	He was a young engineer?
	He fell off; he was knocked off by a bucket, a cement bucket or something. He was working along the top of the bridge, on the top of the...
12	No, no, this wasn't the one.
	Must have been early fifties, mid fifties. About fifty-two or three.
	No, I don't know. The other one was this lad turned a vehicle over, between the dam and their construction site and office.
	I see.
	No, I wasn't aware of the other one.
	[Break in recording]
	Jack, would you finally mention the acknowledgments that you got for public contributions, in the form of awards of different sorts?
13	Well, in 1981 I received the Order of Australia, AO, for services to industry and education. In 1996 I received from the Australian Institute of Company Directors a gold medal award as Director of the Year, Tasmania. In the year 2000 the Australian Maritime College awarded me a Distinguished Service award, for services to the Australian Maritime College. And a further one with the Institution of Engineers was a Emeritus Membership of the Civil College, in 2001. Another aspect which perhaps is significant, and I think we should indicate to younger engineers, is to look after your health. Because I had the misfortune to suffer serious heart problems and other problems in about 1985, which certainly put a limit on activities which I otherwise might like to have taken on.
14	*Were you - I hadn't asked earlier - were you a sporting sort of person in your younger days, or was it...?*
	Not sporting so much. I got overweight. I got overweight; ate too much and I didn't get enough physical exercise. And I picked the wrong parents from the heart point of view. And as I say, the effect... Also I found that stress, mental stress, was a contributing factor. My two sons are now, the eldest is fifty-two, and they're both very conscious of physical activity. They're very keen triathlon runners and cyclists and so on. And I think it's important for anybody, particularly in a job that's a bit sedentary, to concentrate on keeping yourselves fit. Because unless you're fit, you're not much good for anything else.
15	*Exactly right.*
	End Tape: IEA.EHA:PM 4, Side A
	End of Interview