

The Institution of Engineers, Australia; Sydney Division
Engineering Heritage Committee

ORAL HISTORY PROGRAM

Interviewee: John Betty

Tape Numbers: 3&4

Interviewer: Mary Ann Hamilton

Date: 16 September 1996

Number of Tapes: 2

Restrictions on Use: None

Time	Subjects	Proper Names
Side A Tape 3		
0.00-0.13	Tape Identification	
0.13-1.39	Early life, born 1922 lived in Flood St Waverley. Moved to Imperial Avenue, Bondi. Early schooling at Bellevue Hill Public School and Bondi Public School Later to Woollahra Public School where he was in the Opportunity Class. Then to Cleveland St Intermediate High and Sydney Boys High.	<i>Bondi Public School Woollahra Public School Cleveland St and Sydney Boys High Schools</i>
1.40-3.10	As a small boy he had two ambitions one to become an engineer or to become a Ship's Captain. Left school in 1939 and entered the Engineering degree at Sydney University. Finished course in 1943 and then joined the Navy, Hydrographic Branch. The other two Engineers were Ted Peacock, (Later a consulting engineer - Crooks Michel, Peacock and Stewart). The other was Hugh Bub (later city Engineer, Adelaide). That was my first job Sub Lieutenant for Hydrographic Services. Next 3 years at sea	<i>University of Sydney Ted Peacock Crooks, Michel, Peacock and Stewart Hugh Bub</i>
3.13-4.19	First year on HMAS Moresby along the North coast of New Guinea the to Timor Sea between Darwin and Java/Sumatra. Next transferred to HMAS Warrego in the Philippines. Then to NW Australia until end of war. Then did rehabilitation work in the Celebes/ Borneo. Next appointed Commanding Officer of a small survey ship, HMAS Jabiru.	<i>HMAS Moresby HMAS Warrego HMAS Jabiru</i>
4.19-7.36	Detail about work in Hydrographic Service.	

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- After Japanese invaded the N coast of New Guinea Macarthur instructed that a base be set up in Milne Bay - survey of Milne Bay. *Milne Bay*
- Then following Japanese defeat on the Kokoda Track, the forces needed to be supplied by sea - Hydrographic Branch surveyed reefs etc and established a passage round N. New Guinea. *Kokoda Track*
- No surveys of this area, around Gona and Buna and Salamander so Australian Navy ended up doing all surveys for the American 7th fleet. 16-17 Australian survey ships working. *Gona, Buna, Salamander*
- What happened? - started with the landing at Leyte Gulf, the mine sweepers would go in first then the Hydrographic ships would move in, lay buoys for landing, mark where the off shore bombardment ships would go then the landing took place. *Leyte Gulf*
- 7.36-9.00 Moresby not involved with any close encounters with Japanese forces. They did surveys of approaches to the harbours after Japanese overcome. In the Philippines they were involved in back up surveys, locating wrecks, channels, restoring navigation lights etc.
- 9.00-9.50 Was continuous hard work 6am to 11pm was the routine. Took me to interesting parts of the world.
- 9.52-13.43 After the war. 1946, command of the HMAS Jabiru - worked surveying the Curtis Channel approaches to Gladstone and Southern part of the Barrier Reef. Work still continues, can do it more efficiently now, electronic position fixing. Then we did it the old fashioned way - beacons and markers onshore, plot survey marks and finally survey by running soundings up and down fixing positions with sextants etc. Basically the system is the same today except that they use satellite technology for position fixing. Technology better. *Curtis Channel*
- 13.50-14.57 Mentions recent trip on the New HMAS Moresby and that 10% of crew are women. Speaks of his entry to the Navy in War time - no specific naval training, learned on the job. Gained a watch-keeping certificate in one year. *New HMAS Moresby*

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|-------------|---|--|
| 14.57-16.15 | <p>When came back to Sydney and left the Navy (1946?) just wanted a job and joined the Metropolitan Water Board. Was there 15 months, married the Librarian and joined McDonald, Wagner and Priddle (Consulting Engineers), small firm.</p> <p>1952 went to England got a job with Sir William Halcrow and Partners. Offered a permanent job, declined and returned to Australia, to McDonald, Wagner and Priddle.</p> | <p><i>Metropolitan
Water Board
McDonald
Wagner
and Priddle
Sir William
Halcrow</i></p> |
| 16.15 | <p>Pause in Tape</p> | |
| 16.24-17.59 | <p>Detail on the work with Metropolitan Water Board-Warragamba pipeline, 106 inch pipeline between dam and the Nepean River Crossing, 2 106 inch lines there and it came down to 3 84 inch lines from Prospect. The work was designing the anchorages, checking vertical and horizontal curves etc. Was a design job, few field visits, design of the Alawa reservoir.</p> <p>Comments that he was looking for more challenging work.</p> | <p><i>Warragamba
pipeline</i></p> <p><i>Alawa
reservoir</i></p> |
| 17.59-19.50 | <p>At McDonald, Wagner and Priddle, first job (1948) was to design the copper smelting plant in Mt Isa.</p> <p>Design of the roaster building, converter isle building etc. Site work, went down the mines.</p> <p>At first I just designed, everything from house foundations to Copper smelting plants. Balmain Power Station, Kellogs at Botany - over the next 30 years designed just about all their buildings.</p> <p>That was interesting because it was primarily an engineering project - we engaged any architects for their input.</p> | <p><i>Mt Isa
copper
smelting plant</i></p> <p><i>Balmain Power
Station
Kellogs/ Botany</i></p> |
| 19.58-21.00 | <p>Bulk Sugar Mills on the Queensland coast First at Mackay and 1955 at Townsville - Suitor Pier, beginning of interest in Marine structures.</p> | <p><i>Bulk Sugar Mills
Mackay, Townsville
Suitor Pier</i></p> |
| 21.08-22.45 | <p>The firm's main business was the bulk handling of materials - the Coal Loading Plant at Pt Kembla. Describes</p> | <p><i>Coal
Loading Plant</i></p> |

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	the repair on the Oil Refinery Wharf at Kurnell - damaged in a storm. Then a very interesting job - 1964 the US Navy ULF Transmitting Station in the NW Cape now called the Harold Holt Transmitting Station - describes this as a joint project between Australian and American Governments - transmission towers designed in America, second facility designed by a consortium of Australian consultants. He went over as a manager, a lot of the staff (structural engineers) were provided by D.H Fraser Consultants, Perth. Mechanical/electrical work was done by WE Bassets, architectural work by Howlet and Bailey	<i>Wharf/ Kurnell</i> <i>Harold Holt Transmitting Station NW Cape</i> <i>D.H Fraser Consultants, Perth WE Bassets Howlet and Bailey</i>
22.45-24.00	About that time also designed the Breakwater Pier at Bunbury. After that another fascinating job - Savage River Mines in Tasmania. Iron Ore Mining Shipping.	<i>Breakwater Pier, Bunbury Savage River Mines</i>
24.00-26.00	1968 did the King Island shipping study. Describes his research, findings, conflict with local ship owner and the legacy of bad decision.	<i>King Island shipping study</i>
26.00-30.11	Woodchip Plant at Twofold Bay upgrade -description of project and liaison with forestry Commission/conservation issues	<i>Woodchip Plant at Twofold Bay</i>
30.21-31.32	Backtrack to Balmain Power Station - 1953/4 did extensions.	
Side B Tape 3		
31.32-35.00	Woolworths Fire study, 1972. Describes findings re concrete building subject to fire. Engaged David Issacs (CSIRO) to investigate. Findings resulted in the upgrading of the fire codes. Report sent to England.	<i>Woolworths Fire study</i> <i>David Issacs (CSIRO)</i>
35.00- 36.45	Involvement in the Eastern Suburbs Railway - Design of Woollahra Station, not built because of change of government, 1973, Wran came into power. Vandal	<i>Eastern Suburbs Railway</i>

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	proof materials-precast concrete	
36.45- 38.09	1975, Pulp Mill study for Harris Daishowa Eden. Speaks of Environmental problems-water quantities and pollution. Project didn't go ahead.	<i>Pulp Mill, Eden Harris Daishowa</i>
38.09-41.22	1974, Bilgola beach washed away in a storm - called out at night - advice given save houses. Story about Prof. Robertson. Talks of beach processes and Gold Coast problems.	<i>Bilgola beach</i>
41.22-42.59	Beachhaven project in Adelaide, financed by AMP. He was asked for a second opinion on the project direction. Took over the job late in the piece built 1000 boat marina	<i>Beachhaven Adelaide</i>
42.59-46.30	Boat Harbour at Sullivan's Beach just south of Port Standback. First brush with environmentalists and how they dealt with the problem. Description of process of project.	<i>Boat Harbour at Sullivan's Beach</i>
46.32-48.10	Involvement in the electrification of the Newcastle railway line-big job was the Tick Hole tunnel describes challenge and the way it was dealt with. Were able to ease the grade on the steepest part of the line and resulted in more trains being able to run between Sydney and Newcastle.	<i>Newcastle railway line</i>
48.15-50.41	Did a study of a floating dock in Tasmania for the Tas. Government. The Russians needed a base for fishidg fleets in the Antarctic. Speaksabout floating docks and his current research on the role of floating docks in WW11. Describes his experience of them in the War.	
50.53-51.37	Last job before retirement was in the State Highway 23 from Jesmond to Sandringham -first grade separated roundabout in Australia.	<i>State Highway 23</i>
51.37-53 10	Speaks about technological change-	

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computerisation etc expresses doubts about CAD, engineer can lose control of design, engineering an art as well as science.

Concurs with Peter Miller re engineering 'problems', they are "challenges" and "solutions" are "options". Skill in engineering is to pick appropriate options, computers don't have that capacity. *Prof. Peter Miller*

- 53.10-54.20 Speaks of change in stress design -allowable stress design vs ultimate load method, and now limit state design.
- 54.20-55.20 Changes in materials and techniques, welding techniques, concrete technology,
- 55.36-56.00 Speaks of problem with concrete cracking on one of the Kellogs buildings.
- 56.29 Backtrack to period working with Sir William Halcrow in England
Visits family in England in 1952 then work with Halcrow. Gave him a job working on a Power Station to keep him busy, he finished in a matter of weeks! Another problem solving they gave him was similar to a job he'd done in Sydney - so he did that quickly and gained a reputation as a trouble shooter - Offered permanent job, firstly to design the highway under Heathrow but decided to return.
- 58.49 PAUSE IN TAPE
- 58.55-1.01.04 Speaks of changes in profession, where the trend is for engineers to be extremely specialised within their field. When he was a young engineer this was not the case. The major challenge he faced especially in the early years was to take on all aspects of a job, even areas he knew nothing about. finding appropriate options.
- 1.01.04- Cost of engineering component of projects is very expensive.

Side A Tape 4.

- 1.02.00-1.06.43 Speaks about his involvement in contract documentation. His experience working on the North West Cape project provided an insight into the necessity to establish a more thorough approach to contract documentation. In Australia

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until that stage, contracts were almost just a gentleman's agreement. Wrote a book on Engineering Contracts-meant for working Engineers.

Lectured at Sydney University
in contract documentation.

While at Sydney University, spoke

with Prof. Campbell-Allan who

suggested publishing through McGraw -Hill

Publishing who inturn requested that he
direct the book to an English market.

Well received.

Notes that chapters on

writing concise English are very well received.

Prof. Campbell-Allan

McGraw -Hill

Publishing

1.06.43-1.09.20

Comments on changes in the Engineering
courses from when he was studying. Most
noticeable difference being the declining
emphasis on a broad general training for engineers.

- in first two years of his training they studied
the history of architecture, geology and other branches
of engineering as well as one's own engineering
specialisation.

Notes that during the war years they even studied
a course on tropical medicine.

1.09.29-1.12.00

Notes that another big change in training and practise
is an emphasis on computing, almost a reliance on
computing. Peter Miller's point re engineers looking
for options.

1.12.21-1.14.20

Current interest is naval history, investigating role
of the floating dock in WW11. Number of other
aspects. Support of his wife's activities.

1.15.00

END TAPE