The Institution of Engineers, Australia, Tasmania Division

Engineering Heritage Australia

National Engineering Oral History Program

INTERVIEW TAPE LOG

Interviewee: Mr. David B Sugden **Tape Numbers:** IEA.EHA: vdM3
IEA.EHA: vdM4

Interviewer: Dick van der Molen **Number of Tapes:** 2

Place of Interview: Mr. Sugden's home, Kingston Heights, Tasmania

Date of Interview: 10th & 18th March 2003

Restrictions on Use: None

Log prepared using: Sony Stereo Cassette Recorder TC-158SD

Tape: IEA.EHA: vdM3 , Side A		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 18	Tape identification, David Sugden, born in Perth, 31/1/1920	
18 - 57	Background of Father and Mother, originally farmers	
57 - 89	Father's war service, wounded in Gallipoli, artificial arm	
89 - 130	Father's engineering aptitude, married SA young woman, lived in York, where David spent his childhood	
130 - 164	Father equipped workshop with improvised machine tools, David worked together with his Father. David makes motorbike from spare parts.	
164 - 185	State School in York. Father wanted schooling for 10 years, then two years boarding school	York Primary School
185 - 195	Stayed on in York School, obtaining Junior Certificate, then Guildford Grammar, obtaining Leaving Certificate. Encouraged by Mother	Junior Certificate Guildford Grammar Leaving Certificate
195 - 203	Additional subjects to obtain entrance to Uni. and do Engineering: Maths and Science subjects and Latin	Additional subjects by correspondence
203 - 230	Struggle with geometry. Euclid's theorems.	
230 - 237	Completed secondary study by correspondence, with help of Mother.	
239 - 265	Study regime and clerical job	
265 - 300	Regime for passing chemistry at University	University of WA

300 - 323	University life, government Cadet	State Government Cadetship
323 - 340	Reflections on upbringing and education	
340 - 355	Cadet Engineer with Public Works Dept., WA	PWD, WA
355 - 364	Design and fabrication of car gas producer. Producing standards and regulations for use of gas producers	Work with gas producers
364 - 392	In charge of design checking of gas producers, including drawing control	
392 - 407	After completing Uni, was offered secondment to School of Mines in Adelaide to develop supercharger for gas producers. PWD WA refused release.	Various design and construct jobs for PWD
407 - 429	Head office Mech. Eng. Dept. Electrification of brickworks, water boring plant	
429 -440	Design of plow for plowing on steep slopes, merry-go-round	
440 - 472	Attempt at rationalising design of farming implements. Proved impossible	
472 - 494	Standardisation of measuring instruments. Formation of NATA, Federal Councilor of NATA, representing WA	NATA
494 - 514	In charge of Central Workshops of PWD WA, Age 23.	Manager,Central Workshop, PWD
End Side A, tape vdM 3		

Tape: IEA.EHA vdM3, Side B		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 113	Comments on managing workshop. Industrial relations, use of technical skills	
113 - 226	Army Inventions Directorate, honorary Inspector. Anecdotes about diviners. Perpetual motion devices. "Burning oil" defense of UK Channel coast	Hon. Inspector, Army Inventions Directorate
226 - 260	Biford Brick Works electrification. Originally central drive National gas engine with rope drive.	
260 - 299	Joined HEC, Tasmania, as Plant Engineer. Expansion programme of HEC	Still classified as Cadet Engineer in WA. Joined HEC
299 - 359	Re-organisation of plant management, introducing central control of acquisition and maintenance of plant, operator training, and costing.	Central Control of Plant functions
365 - 381	Reflections on success of plant operation, personnel turn-over 5%, against 20% for remainder of HEC	
381 – 436	Heavy transport organisation. Special section within plant section, design and construction of special self-balancing trailer, 100 tons capacity, in 28 days.	Organisation of heavy transport
436 -	Reflections on personnel	

446		
446 - 480	Specialised equipment development. Head towers for cableways for dam construction	Specialised construction equipment
480 - 517	Gantry for pipe lining and placing of penstock pipes.	
517 -	Tunneling	Tunneling equipment
End side B, tape vdM3		

Tape: IEA.EHA vdM4, Side A		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 78	Tunneling (cont'd). Poatina Power station. Vertical shaft and cage construction	Tunneling equipment, Poatina power station
78 - 93	Hydraulic-drive locomotive	
93 - 134	Operator training scheme. Plant operation took over all field workshops and field maintenance. Licensing system.	Operator training scheme
134 - 175	Operator selection. Ex-Army instructors. Field workshops	
175 - 216	Transport of prefab houses to construction sites. Tree trimming en route.	Prefab housing transport
216 - 262	Tunnel boring machines. Rebuilding of USA-built tunnel boring machine. Transport of TBMs.	Robbins
262 - 283	Accidents operating TBMs.	
283 - 302	Science Centre and CSIRO. Science Centre Committee, through involvement with NATA. Member of CSIRO State Committee	Scientific and CSIRO Committee memberships
302 - 327	Advisory Committee to Minister for Industry. Planning Committee Kingborough, planning scheme.	
327 - 342	Southern Metropolitan Planning Authority.	
342 - 359	Experience in USA. Cross-disciplinary understanding and cooperation.	
360 - 384	1967. Started own private practice. Consulting work with Robbins Co. Design of TBMs.	Private consultancy practice, backed by Robbins
384 - 435	Measurement of TBM performance. Example: Melb. Metropolitan Board of Works TBM for Eastern suburbs outfall sewer	
435 - 490	Godelfa TBM for Melb. Underground rail loop. Redesign of Java machine. Spraying shotcrete as part of boring operation	
490 -510	Machine for decline at Coalcliff (NSW). Specialist design, decline 1:3	
End side A, tape vdM4		

Tape: IEA.EHA vdM4, Side B		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 27	TBMs. Risers on outfall sewer tunnels, Sydney. Design, not built.	
27 - 87	Work for ANU, design review of homopolar generator, running at full speed, energy of 200 tons TNT.	Consulting projects
87 - 153	Woodchip mill at Triabunna. 2500 hp direct drive motor sheared hub. Foundation failure.	
153 -180	Hobart ferry terminal. Drive and terminal rearrangement	
180 - 215	Fishing boats, hydraulic drives for scallop dredging gear.	
215 - 233	Hydraulics for earth-moving equipment. Interest in Hydraulic motors, pumps etc.	
233 - 278	Geared hydraulic motors. Robbins. Dredging, raise borers.	Robbins
278 - 306	Ships' propellers, development of new propellers	Ships' Propellers
306 - 364	Analysis of mechanics of violins. Insertion of tubular struts to divorce stress from vibration requirement.	Interest in music and mechanics of violins
364 - 388	Committee work. International Tunneling Committee, Conferences and exhibitions.	
388 - 411 .	Musica Viva Committee. Tasmania Design Committee. Kingston Rotary committee, founding member.	Musica Viva, other committees
411 - 427	Consultancy with Robbins. 10 year monopoly agreement. Involvement with all Australian tunnels.	
427 - 477	Channel Tunnel. Tunnel for French end. British end. Wanted to use a British machine.	Channel Tunnel
End side B, tape vdM4 End of Interview		