The Institution of Engineers, Australia: Tasmania Division

Engineering Heritage Australia

National Engineering Oral History Program

INTERVIEW TAPE LOG

Interviewee: Ralph Rallings **Tape Numbers:** IEA.EHA: vdM 5, IEA.EHA: vdM 6, IEA.EHA: vdM 7

Interviewer: J. L van der Molen **Number of Tapes:** 3

Place of Interview: Home of Mr. Rallings, 32 Bay Road, New Town, Tasmania

Dates of Interview: 26 May & 2 September 2004

Restrictions on Use: None

Log prepared using : Sony Stereo Cassette Corder, TC-158SD

Tape: IEA.EHA: vdM5 , Side A		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 – 23	Introduction, date of birth: August 1939, In Brisbane	Ralph Alfred Rallings
24 - 32	Father: Norman Arthur Rallings, Auctioneer, Mother Teacher	Norman Arthur Rallings
33 - 59	3rd of 8 children, State School Manly, Qld	Manly Qld State School
60 - 90	Enjoyed learning and State School, Tribute to home environment	
91 - 101	Spare time: Playing at Manly waterfront, Fishing	
102 - 128	Secondary School: Local Witham High School, 2 years grade 6 and 7, Scholarship exam, 2 years High School, 2 years Matriculation	Witham High School
129 - 175	High School entry with 200 students, Matric Class was 18. Streamed Commercial, Trade, Academic	
176 - 202	University, Good at Science and Maths, so chose Engineering, limited vision and advice available	
203 - 236	Back to High School: wore no shoes. Sport: Rugby League, Tennis, Cross Country, Swimming	Sport: Rugby League, Tennis, Running, Swimming
237 - 250	Jobs: Fruit picking, rolling tennis courts, delivering ice, kept fit	Part-time jobs
251 - 270	Matric: Math 1, 2, Science, Physics, Chemistry, Geography (failed Geography)	
271 - 291	University: first two years General Engineering, specialisation in 3rd year.	University
292 -344	General discussion on University Education Job in Irrigation Dept. Farm Advisory service	Job: Irrigation Dept. Farm advisory service

345 - 357	Design of spray irrigation systems and farm dams	
358 – 379	Failures of farm dams, investigations.	Investigation of farm dam failures
380 - 393	Fellowship, Water Research Foundation, based in Uni. of Queensland	Fellowship, Water Research Foundation
393 - 404	Qualifications of Assistant	
404 - 427	Initiated questionnaire on farm dam failures, Piping Failures in Brigolo area. Committee headed by Dr Fraser, Fraser's theory	Dam Piping failures Dr. Fraser
428 - 445	Piping failure of Flagstaff Gully Dam, Tas, also other parts of Aust.. Research by CSIRO and Dr. Anderson in SA	CSIRO, Dr. Anderson
446 - 452	Experimental program to reproduce piping failures by different grades of compaction and consolidation	Piping failures,, Consolidation
452 - 459	Parallel investigation of chemical aspects suggested by Anderson	Piping failures, Chemical aspects
460 - 480	Fieldwork, advising farmers on their dam problems	
481 - 491	Piping problem, dispersion associated with poor compaction and chemical composition	
492 - 501	Test on farm dam, permeability testing	
End side A, tape IEA.EHA: vdM 5		

Tape: IEA.EHA vdM5, Side B		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 31	Fieldwork on piping failures, Cont'd. Description of permeability test causing piping	Piping failures
32 - 56	Publication of results by Water Research Foundation. Correspondence with Dr. Sherard	Publication by WRF Dr. Sherard
57 - 90	Further development of dispersion test. Emerson. Influence of soil acidity. Awarded Master of Engineering	Emerson dispersion test
91 - 117	Returned to Farm Advisory Service, started to investigate other work. Dr. Peter Stocker., ARRB	Dr. Peter Stocker, ARRB
118 - 129	Approached ARRB for Research Fellowship leading to PhD. Topic: Lime and cement stabilisation of clay soils	ARRB Fellowship PhD
130 - 166	Pre-treatment moisture content. Did not think it warranted a PhD 10 Week Course in Soil Physics for Engineers	Soil Physics for Engineers
167 - 209	Political Activity regarding Viet Nam and Conscription	Civil liberties
210 -220	Discussion of civil liberties in Queensland	
221 - 247	Cont'd. Pamphlets, street marches	
248 - 290	University movements	

291 -317	Joined Coffey and Hollingsworth, Adelaide. Seconded to Montgomery Laurie and Davey, Malaysia, 1971, stationed in Kuala Lumpur, Main road development	Malaysia assignment
317 -323	Cont'd. Malaysia Main Road 1, sections K.L. – Seremban, Ipoh – Kuala Kangsar (with tunnel and crossing Perak River), road around Butterworth	Malaysia route #1 development, Kuala Lumpur, Ipoh Kuala Kangsar, Butterworth
324 - 356	Drilling for tunnel portal, Kuala Kangsar. Problem with aerial photo interpretation in dense jungle	
357 - 378	Choice of alternative route. Felt he had little support and was not very well equipped for the work	
379 - 387	Felt not experienced enough for the geomechanical work he had to do. (feeling well known when first working in the tropics)	
388 – 430	Transferred back to Adelaide, worked with David Stapleton. Engineering Geology, origin of soil formations. Reviewing of reports "no holds barred"	Coffey, Adelaide. David Stapleton
431 - 465	Lake Frome Uranium project, dewatering systems, Borehole drilling	Lake Frome
End side B, tape IEA.EHA vdM 5		

Tape: IEA.EHA vdM6, Side A		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 – 012	Introduction	
013 - 051	Introduction of nuclear meters to measure soil density, instead of sand replacement method	Smith
052 - 074	Explanation of backscatter and spike methods	
075 - 090	Port Stanvac refinery soil collapse. Left Coffey & Hollingsworth. Wanted direction in environmental planning	Joined Environmental Planning Section, SA Government
091 - 151	Environmental planning section of Development Commission, SA. Monarto – New town, soil investigations, environmental planning	Monarto New Town Development
152 - 171	Environmental Impact study.	
172 - 219	Study of classifications of soils and soil behaviour. Also, learned about organisation, found Planning Comm. Unsatisfactory. Demographic information on Monarto incorrect	Northcote
220 - 232	Political environment prevailing at the time in SA (1970)	Don Dunstan
233 - 260	1972, Tas. Dept. of Road Transport, Materials and Research Engineer. Involved Management of people 20 Materials & Research Lab,	Moved to Tasmania Dept. of Road Transport
260 - 287	Faced appeal against his appointment form inside Dept. Transport	
288 - 354	Laboratory and Field Section Lab. Section was well staffed and equipped. QA system in place.	Staffing and Management

	Field section too hierarchical. Discussion of staff and management. Management style	
355 - 425	Running of Field Section, undermanned and lack of expertise. Laboratory staffing good. Problems with core drilling	
426 - 456	Discussion of equipment, both laboratory and field	
457 - 465	Concrete testing equipment	
466 - 504	Staff attitudes, problems with technicians' roles.	
End Side A, tape IEA.EHA vdM 6		

Tape: IEA.EHA:VDM6, Side B		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 08	Introduction, date of tape: 02.09.04	
09 - 37	Disc. on conduct of geotechnical investigations. Need for understanding of distressed condition	Geotechnical investigations
38 - 54	Requirement of formal investigation of distress in road pavements	Road pavements
55 - 80	Examples of "reading" crack patterns in pavements. This was never recorded in investigations	Crack patterns
81 - 141	Disc. on tasks of engineering geologists, and their proper place in geotechnical investigations	Engineering Geologists
142 - 184	Logging of pavement defects as part of engineering geology. Lead to analysis of defects and their origin	Pavement defects
185 - 230	Preparation of reports. Critical Peer reviews	Preparation of reports
230 - 251	Examples of reports and reviews. Difficulties in report writing	
252 - 268	Purpose of writing reports, to whom are reports written	
281 -- 310	Information in reports for tenderers, conclusions	Tender information
311 - 340	Tender information from geotechnical reports, disputes caused by inaccurate or incomplete information	
341 - 366	Construction control. Calibration of nuclear meters	Construction control
367 - 390	Daily functional check on measurements of density and moisture content	Instrument checking
391 -410	Technicians engaged in both geotechnical investigation and later in construction control of same road sector. Better results	Dual function of technicians
411 - 431	Checking of moisture conditions, test holes.	
432 - 438	Specifications for base courses, gradually deteriorating quality	Base course failures

439 – 450	Use of unsatisfactory base course materials	
451 - 462	Bad road surfaces caused by manner of using 10 year maintenance contracts	Bad road surfaces
463 - 474	Heritage issues in road construction	Heritage
475 - 485	Introduction of Quality Systems in late '80s	Quality systems
End side B, tape IEA.EHA vdM6		

Tape: IEA.EHA vdM 7, Side A		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 8	Introduction, Date of recording 2.9.04	
9 – 65	Late '80s introduction of quality systems. Considered introduced system based on ISO 9000 far to complex for the work performed	Quality systems
66 - 88	Problem of QA system imposed from outside, instead of one designed around your own activity	
89 - 125	Discussion on purposes of ISO 9000, involvement of NATA in accreditations, and fitness for purpose	ISO 9000 and NATA
126 - 160	Change to Project organisation, where each section had to raise its own funding, causing difficulties for geomechanical research	Project management
161 - 190	Problem of Project Management being the pinnacle of Engineering. Found that Managers are preoccupied with budgets and schedules but do not help solve engineering problems	Role of Project Managers
191 - 236	Small research projects in pavement design and construction. Tyre pressure surveys Pavement design done on 80 psi tyre pressure (crossply tyres), instead of modern 120 psi for radials	Research project on tyre pressures
237 - 264	Role of tyre pressures in pavement failure is minimal. Radial ply tyres tend to follow tracks, crossply tyres likely to move out, Rutting of pavement	Pavement damage due to rutting
265 - 282	Tyres are supposed to flex to 15° under max. load. If load reduced tyre pressures are supposed to be lowered.	
283 - 287	Behaviour of pavement under tyre load assumed to be elastic. Pavement is granular material, rutting predominant cause of failure	Pavement failure modes
288 - 312	Shear important factor in pavement failure, not taken into account in pavement design. Original close link between geomechanics and pavement design is now lost. Paper in Geomechanics Journal	Geomechanics and pavement design
313 - 331	Disc. on corrugations formation in roads akin to wave formation on water surfaces, shear phenomenon	Road corrugations
332 - 344	Road deterioration due to "springiness" of axles may be wrong perspective.	Causes of road surface deterioration requires more investigation

	Observed major road deterioration in curves and up slopes, where traffic moves slowly. More investigation needed	
345 - 354	After "shake-down period" pavement will behave almost elastically as long as shake-down load is not exceeded	Behaviour of pavement surfaces
355 - 362	When load is increased or strength decreased due to ingress of water soil will behave plastically. May shake down again or show cracking	Overload
363 - 396	Convenor of Working Group for cataloguing of pavement failures, describing and photographing failures and listing with possible causes. Publication reprinted and used by USA road authorities	John Brett, DMR – NSW Ron Gordon, Q'ld David Potter
397 - 425	Development of Shake down theory, John Brett. Observation of pavement behaviour under increasing load. Different models, also including critical load models linking deformation and shear	Shake-down theory. Models of pavement behaviour
426 - 432	Models including negative pore pressures, linked with Australian model of unsaturated soils, against European model of saturated soils	
433 - 450	Disc. on changing attitudes. Technical problems and needs for technical research downgraded with respect to project management	ARRB
451 - 482	Question on place of ARRB. Has to raise its own funding. This has proved to cause considerable reduction in quality and quantity of basic research in geotechnical understanding of pavement behaviour	
483 - 495	Changing work practices due to economic rationalism, outsourcing of work to Pitt & Sherry	Outsourcing of work
496 - 513	Failure of base courses in North of state. Insufficient control of quarry material, re-using scalped materials into road metal.	Crushed Stone and sand Association
End side A, tape IEA.EHA vdM 7		

Tape: IEA.EHA vdM 7, Side B		
Time/ Counter	**Subject**	**Proper Names & Keywords**
0 - 8	Introduction, recorded on 2.9.04	
9 - 89	Quarry materials testing and QC. Under new regime, the Contractor needs to do the testing, leading to difficulties in QC	QC, testing by quarry master of own product
90 - 127	Disc. On QC of quarry materials. Statistical control difficult and not in place.	
128 - 146	Continuing problem with shifting responsibility for testing to contractor. Does not always work without difficulty	Contractor testing.
147 - 204	Limits on polishing characteristics of material in wearing courses. Legal problems with friction values and skid resistance	Legal accountability for skidding accidents

205 - 219	Responsibility of road users vs. that of road constructors	Responsibility
220 - 252	Accident analysis and forensic work, regarding Road authority responsibility	
253 - 293	Gathering data on road surfaces. Nighttime visibility textures and colour. Black surfaces and heat radiation	
294 - 308	Ambient temperature in city on summer days. Contribution from black road surface	Ambient temperature
309 - 352	Other activities: Keeping fit, cycling, Gardening, collecting slide rules, working important. Active mind. Interaction with people.	Other activities, hobbies
353 - 368	Not particularly interested in higher management. Leading small purpose-made groups, not multi-nationals	
369 - 387	Working with people, Working with different sorts of people.	
End side B, tape IEA.EHA vdM 7, End of Interview		