

Bryan Bartley Interview

November 2010

IPENZ Auckland Engineering Heritage Committee Oral history Project

Interviewer: John Fitzmaurice

Interview date: 24th November

Bryan Allen BARTLEY

Track 1

Interviewed at his home 625 Mt Eden Road, Mt Eden, Auckland

Bryan was born on 30 November 1928 and lived alongside Cornwall Park Primary School, where he started his schooling at the age of six, a year later than what is now normal because of the shortage of teachers in the depression. He talks of playing in the neighbourhood without parent supervision, also the norm at that time. His pharmacist father wanted him to go the Auckland Grammar School for secondary education, as had his older brother, but Bryan was interested in engineering.

03.20 A friend convinced him that Seddon Memorial Technical College was the school to go to for engineering. Looking back, Grammar would have been better preparation for university; however Bryan went through Form 3 to Form 6, sitting School Certificate and University Entrance at Seddon. He had no chemistry and, in his last year, did a crash course under a tutor.

06.05 Bryan tells of his Intermediate Year for the degree of bachelor of Engineering at Auckland University College. He failed chemistry, but passed the next year. He tells of his namesake, Roger Bartley – a distant cousin – who scored highly in the chemistry exam; only to discover his own name further down the list, barely passing - what Bryan described as the ‘perfect pass’

Track 2

Track inadvertently records a coffee interlude, and can be ignored.

Track 3

Bryan talks about his time at university and the ex-servicemen in the class setting the standard for studying, while ex-school students tended to do the minimum. Amongst the ex-servicemen, Bryan mentions George Beca, Alex Aitken and Geoff Woodward. At this time he also met Cliff Barnett with whom he was to cross paths repeatedly from then on. The years 1947-1950 were spent on Bryan’s professional years for his degree.

Track 3 (Continuing)

Bryan tells of the move of the School of Engineering to Ardmore, which took place the year after his intermediate year in the city. Good fun was enjoyed in the move over the holidays, directed by the Dean, Professor Tom Leach. Leach was involved in some pretty unorthodox research for the war effort, including the preparation of ‘shaped charges’ from the explosive cordite, undertaken in the school’s workshop on the city campus. He tells of other unorthodox experiments, which had the effect of putting Leach offside with the authorities on occasion.

At Ardmore there were Teacher Training College student already on site. The dormitories occupied by engineers were earlier used to accommodate American airmen training to be pilots, Ardmore being an aerodrome.

04.40 Bryan explains that the aerodrome hangers were used for laboratories and classrooms for the School of Engineering. Engineering students dined with teaching students for meals, and several social liaisons developed. The discipline of the Teachers' College principal, Tosh Wilson, towards his students was opposed by ex-servicemen engineering students. Bryan describes the disruptive tactics they employed, including linking into the College public address system with bogus announcements and telling of senior staff misdemeanours – these latter disclosures resulting in the dismissal of the college principal.

08.20 Other lecturers at the School of Engineering mentioned by Bryan included Harold Wallace. He tells of the latter's rejection from a US appointment when his photograph disclosed that Wallace was a Maori. This led Wallace into lecturing here, following which he joined Beca Carter, his work including the design of the space-frame grandstand for the Ellerslie Racecourse.

10.20 Mr Dawson was another lecturer – in electrical engineering. Mowbray came later, specialising in hydraulics. Lew Thomas was the lecturer in civil engineering, later to become involved in Bryan's Barmac activities, because of Thomas' interest in concrete aggregate.

11.40 Bryan failed the design project exam in his final year, notwithstanding having been warned of the topic to be examined. On completion of the year's study he joined the Auckland City Council with this subject uncompleted.

Track 4

Bryan comments that the returned servicemen students also kept the tutors up to the mark, and recounts an anecdote about a lecturer who was under stress and taking sleeping tablets for night rest and stimulants for daytime, only to get these mixed up resulting in his being very drowsy at the blackboard. The matter was reported to the Prof and quickly righted.

Bryan left university in 1950, joining the structural checking department of the Auckland City Council. Vern Colman was his supervisor, monitoring with a mature mind the work of his more recently educated staff, Vern having been away on war service and promoted notwithstanding his absence from design work. Consultants submitting designs also were appreciative of the more advanced knowledge of the checking staff.

Later in this first working year, Bryan sat and finally passed the design paper for his degree.

His next job for Council was supervising the uplifting of tram rails in the Ponsonby area. He then moved to the Waterworks Department, designing filter structures for the Ardmore Water Treatment Station.

04.45 A chance then arose to work in the quarrying activities of Winstone Ltd.

Track 5

Bryan starts work with Winstone Ltd at its Lunn Avenue quarry. He tells of a clay ridge in the quarry rock which had to be surveyed and removed. This took a year, the clay being used to build up an area near the quarry and to infill a swampy area in Penrose, later to be the site of a wallboard factory.

02.35 Bryan talks of the extent of the quarry rock and being asked to identify quarry sites both to the north and to the south of Auckland. He reverts to talking about working with Harry McInteer, a Scottish quarryman brought out from England with others to do the quarry work. Difficulties between workmen at the quarry are

described, as was the discomfort Bryan felt having a university degree in that work environment.

08.07 Bryan finds a new quarry in Hunua Gorge which the company decided to buy. Bryan is in charge – ‘my quarry’ he describes it. The rock is *greywacke*, a sandstone *greywacke*, and superior to mudstone *greywacke*.

10.18 The quarry is slowly developed and re-equipped in 1959-60. Just at this time a quarry job in Malaysia for the Kuala Lumpur Airport comes to Bryan’s notice. He and another engineer previously with the City Council are engaged, Bryan’s wife being very keen. They go there with their four children.

Track 6

Bryan takes up appointment as Quarry Manager for Gammon Malaya Ltd, only to find the project delayed by twelve months during which time he is employed on other work for the company.

02.06 With change in management of the company, the quarry job became redundant, having worked there for the period 1961-1963.

02.41 Bryan returns to New Zealand in 1963, taking up renewed employment with Winstone Ltd as Quarries Engineer for the company’s seven quarries. He served in this role for seven years. He was then appointed General Manager, Central Engineering Services, Engineering Design Officer and in charge of the company’s tradesmen, carpenters and electricians – a group with ‘quite a lot of horsepower’.

05.45 Winstone Ltd built the wallboard factory on the site in Penrose where the foundation fill had earlier been placed. Wallboard was manufactured from hydrated gypsum plaster and pumice, rolled out on a slow conveyor belt then cut into lengths and put into dryers. It was a continuous process plus intermittent one, requiring the use of electrical relays and the development of logic control systems. This was an innovative use of ASEA equipment with speed control of all functions including intermittent functions with start-stop action. The design and installation was the work of Bryan’s staff.

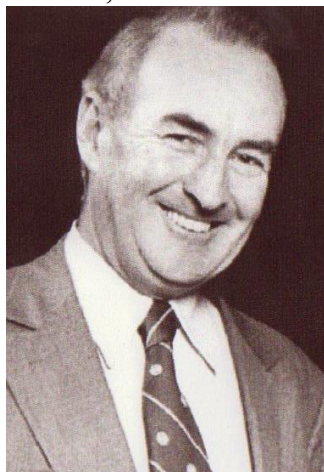
07.56 Bryan touches on his institutional activities in the 1970’s which took him to Wellington on frequent occasions.

Track 7

Nothing

Track 8

During 1967-1985 Bryan continues work with Winstone Central Engineering Services, first as Assistant Company Engineer and later as General Manager Central



Engineering Services, in control of quite a large unit, in-house services of this type being preferred by large organisations at that time.

01.50 Then Bruce Judge became a director of the company, one of a group plundering bigger companies such as Winstone and didn’t use in-house services, preferring outside consultants. Bryan’s work ‘withered on the vine’, his role dwindling to the point where he resigned in 1985.

Bryan Bartley, circa 1985

However, through Winstones, he was able to take an active part in NZIE, the New Zealand Institution of Engineers, later to become IPENZ when Bryan was on its Council.

03.24 In 1979, while still on IPENZ Council, Bryan was appointed as its representative to the Board of Carrington Polytech and, in his last seven years on the Board of Carrington, which became Unitech, was chairman. This was at a time of great change in education. Also, he was on the Council of the Association of Polytechnics NZ, APNZ, for seven years.

04.35 Earlier, in 1970, Bryan heard that Jim McDonald, Assistant City Engineer of Wellington City Council had invented a rock crushing machine. They met. Jim had taken out a patent, but didn't think he would renew it. Bryan could see it could be of use from Winstones' point of view, in that it could produce a well shaped chip in a full range of particle sizes. He persuaded the company to let him build a machine. Bryan and Jim improved the design.

06.50 Bryan explains the crushing process and the reason for the efficiency of the machine. – 'stone breaking against stone' rather than against steel, with the metal wear that caused. They had a breakthrough with the Winstone machine, and proceeded to license manufacture. Some 4500 rock-crushing machines are now operating throughout the world with the Barmac name. The machine has been highly successful commercially.

10.40 Bryan talks about the local manufacture of the machines, finishing with a solo NZ license to Paul Tidmarsh in Matamata who, in turn, bought out the license to manufacture in England. It is made in the UK, the other exception to local manufacture being in Japan.

12.12 Bryan goes on to tell of his shared invention for feathering propellers for yachts. Through Doug Armstrong of Unitech, Bryan was introduced to John Bundell, as Doug felt Bryan could help John patent his invention of the feathering device. During a trip to Europe, Bryan thought up the solution to the reversing problem the device had. The improved invention proved to be very successful.

14.00 Manufacturing commenced in a small way; but by 2010 they were producing 750 propellers each year, selling them around the world, with a turnover reaching \$1M.

Track 9

Bryan, at the request of the interviewer, recites his qualifications and honours, which include Distinguish Fellow of IPENZ and the ONZM – Officer of the New Zealand Order of Merit.

Track 10

Bryan expands on his qualifications mentioned in Track 9. He also quotes the titles of the technical papers, mostly on the Barmac machine, he has presented to various conferences around the world.

02.40 On prompting, mentions that his ONZM was awarded for his contribution to Engineering and Society.

03.12 Bryan reflects that his inventive work probably stems from his earlier training at Seddon Memorial Technical College and the hands-on activity experienced there. On engineering careers in general, Bryan notes that design is generally done by young people, progressing with maturity to management roles. He reflects that he has thoroughly enjoyed his engineering work, noting that there have been some successes

and some failures; but generally great satisfaction. Halfway through my career I had a marriage break-up and life took a different path.

05.32 I took up opportunities as they came along, such as meeting up with Jim McDonald. Jim was a very interesting character and was Deputy City Engineer of Wellington at the time Bryan met him. He later became City Engineer. He had earned many wartime decorations serving in motor-torpedo boats in the North Atlantic. He earned the DSO and DFC plus two bars – four medals in all and commendation for saving lives at sea.

06.40 He invented a torpedo sight to go on motor-torpedo boats. Bryan shows the book “North Sea Warrior” by Jerry Wright which describes the exploits of Lt Comd. Jim McDonald.



*Bryan photographed
at interview*

07.15 McDonald was greatly admired by the Mayor of Wellington; but the industrial-like development of the rock-crushing machine did not fit into municipal activities and McDonald was invited to do what he liked with his invention, one of which had been built for the City. Bryan explains that he had a one-third share in the activity, and relates how he thought he would share 50:50 with Winstone Ltd in his spare-time activity on the project. However he discovered such companies own one body and soul. Notwithstanding, the company Board decided the project was not viable and surrendered all interests to Bryan – this turning out to be most fortunate.

Jim McDonald died in 1981 at age 60 and Bryan carried on the project with Jim's widow until they sold out their interest in 1992.

Track 11

This track, and Track 12, recorded on 25 January 2011, are supplementary to the above and cover in more detail Bryan's work with the NZ Institution of Engineers and with the Civic Trust Auckland. He describes, as Chairman of the Auckland Branch of the Institution, the efforts made to seek premises for Branch meetings, including the sharing of premises with the Auckland Branch of the Institute of Architects which occupied one of a number of heritage buildings in Princes Street.

03.20 The Branch favoured another of these buildings which was about to be pulled down. The Civic Trust appealed the Auckland City Council decision to demolish. To give weight to this appeal, Bryan joined the Trust and spoke on its behalf. Bryan describes the outcome of these negotiations. The City Council did proceed with demolition, the building being replaced with a 'horrible' fountain which sits on the site next to what became the Graduates Club. Dove Myer Robinson suggested the Branch share the use of one of the other older houses with the Civic Trust. The Branch did contemplate a 20 year lease with the Trust for this purpose but the Council of the Institution was not eager.

05.05 Bryan reminisces on the supportive efforts of fellow engineer Jack Lello in this matter. Jack was the Chief Planning Officer for the Ministry of Works in Auckland and a Life Member of the Civic Trust, as Bryan too became about that time.

Bryan mentions that Jack passed away only a week prior to this interview.

Track 12.

Bryan describes in more detail his association with the Institution of Engineers. Having enjoyed being chairman of a branch, he put his name forward for Council and was duly elected. At the time the institution's title was the New Zealand Institution of Engineers, styled NZIE. Bryan tells of the concern the Council had of the public's lack of conception of the work of professional engineering, and with the urging of consulting engineer Mike Ensor, Council changed the title to IPENZ – the Institution of Professional Engineers New Zealand.

01.33 Bryan is appointed to be one of the three vice-presidents of the Institution – vice-president for professional practise. In this office he developed strong links to ACENZ – Association of Consulting Engineering New Zealand – which he considered had a more professional approach to engineering. He and his wife attended several of the Association's annual conferences, one, he recalls, being in Taupo.

03.35 Bryan proceeded to overhaul the disciplinary procedures of the Institution and mentions having to sit in on a disciplinary hearing. The policy was that 'problems should be solved at the lowest level', and if solved at branch level rather than having to go before Council, so much the better.

05.00 Bryan talks of chairing the 1982 Annual Conference of the Institution in Auckland. There was a conference theme and he mentions that such conferences were routinely attended by representatives of the Institution of Engineers Australia (IEA).

05.50 Later on Bryan was involved with the Engineering Heritage Committee of the Institution. He found this work very interesting, commenting that, earlier, he had attended an IEA Heritage conference in Ballarat, presenting a paper on Winstone quarrying activities. He is now involved with the Auckland heritage committee, responsible for preparing a book on the Auckland area engineering heritage. He describes the work, rounding up photographs and seeking copyright consents. This work is expected to be finished by March, to be followed by an approach to publishers.

08.20 Asked which aspects of his career stood out the most, Bryan replied that 'Careers are determined by accident'; outlining his own experience in this regard. and how the opportunity to join Winstone arose and other aspects of his career including the invention of the feathering propeller. While he had a busy administrative life, he enjoyed the structural design of buildings and related particularly designing the building for the 42-inch gyratory crusher – the biggest crusher in New Zealand – installed by Winstone in its Lunn Ave quarry. The building design was exciting, interesting and challenging, the foundations being below the water table. Water pumped from the quarry benefits the Remuera Golf Club, being used to irrigate fairways and greens.

11.45 Bryan's career developed many friendships. Among these was that of John Fisher, a fellow engineering who was in the class behind Bryan at Ardmore. John worked for JJ Craig Ltd, a company in the aggregate business which had been purchased by Winstone in depression days. John was hampered by his company being subsidiary to Winstone and left after a time to join a cement company where his career thrived.

13.05 Bryan's inventive phase with the propeller came after retirement, Doug Armstrong, the head of UNITEC, introducing Bryan to John Blundell who was having trouble developing the propeller design. The improvement concept came to Bryan during a train journey, as related earlier in the interview.

Asked what aspect of his career might have earned him his public honour of the ONZM, Bryan cited being International President of the Quarrying Institute in the

UK, this being a high level of achievement in the quarrying industry – a position no one else in New Zealand has achieved. Others might be the invention of the Barmac Crusher which won an export award; or service to the community, particularly through the Civic Trust or as Chairman of Unitech during a time of its rapid development.

The interviewer congratulates Bryan on an outstanding career.

INTERVIEW ENDS