Stanley Purves, the Quarry Engineer. Part 1

by Bill Glennie

I first came across mention of Stanley Purves in Bob Colefax's booklet, '*Moruya's golden years'*, but since Bob, the office clerk at Moruya Quarry between 1924 and 1929, wrote him off as *'a painfully English character of the snob variety'* who had '*enjoyed the advantages of an English public school education'* there seemed little reason to take much note.[i] My interest was in the Scots who worked at the granite quarry, in particular those from my home town, Aberdeen, Scotland's *Granite City*.

Then, quite by chance, while digging for materials on Moruya in the Mitchell Library in Sydney in late 2007, I discovered an album of photographs of the quarry which had been kept by Stanley Purves. The modest album of annotated photographs chronicles the development of the quarry between February 1925 when Stanley Purves arrived to take up his post as Quarry Engineer and January 1927 when he left for Tasmania.

Thanks to the initiative of Jennifer Broomhead, then Copyright Librarian at the Mitchell Library, I made contact with Alec Purves, Stanley Purves's son, who lives in Bridport, Tasmania. I learned that Stanley Purves was in fact a Scot, a Fifer, born in Kirkcaldy in 1893, on the northern shores of the Firth of Forth, directly opposite Edinburgh.

Stanley Stewart Beattie Purves arrived at Moruya with an impressive pedigree, although there was no privileged background and no private school education. His father owned the *Economic Drapery Stores* in Kirkcaldy's High Street, promising would-be customers, '*There is no place like the Economic for value*'. He attended Kirkcaldy High School for three years, and on leaving school was apprenticed with a local firm, Douglas and Grant of Dunnikier. Their foundry had acquired a reputation for the manufacture of superior steam engines, but at the beginning of the twentieth century the firm was diversifying into the production and export of rice mills. During his apprenticeship Purves continued his studies, attending his old school's evening continuation classes, and winning a medallion awarded by his employers for Mechanical Engineering in 1910-1911. He attended day classes at Heriot-Watt College in Edinburgh between 1911 and 1914, and in his second year he was awarded class medals for Mechanical Engineering and Electrical Engineering

Stanley Purves was caught up in the patriotic fervour which accompanied the outbreak of the Great War in August 1914 and at the age of twenty-two he volunteered to join the Scottish Horse. Seven months later he was promoted to Lance Corporal, exchanging his horse for a motorcycle – his favourite mode of transport - to become a despatch rider. When further promotion to Second Lieutenant came in December 1915, he let it be known that he was '*anxious to get a transfer to the Royal Naval Air Service*'.

Airmen were a breed apart from the men who lived, fought and died in the trenches of the Western Front. The pilot was ultimately reliant on his own efforts, and it was a role that appealed to risk-takers, non-conformists, and Stanley Purves.

Both the RNAS, the Royal Naval Air Service, and the RFC, the Royal Flying Corps, were seen as the preserves of middle class privately educated young men, although it was the RNAS which had the greater reputation for snobbishness. Purves might not have met the private school criteria, but he would have been encouraged by the cryptic comment of one member of the selection board of the RNAS: '*We always felt that someone who rode a horse had the right kind of hands for flying*'.[ii]

Purves did not make it into the RNAS. Instead, in July 1916 he was seconded to the RFC, the air arm of the British Army. Following basic flying instruction and officer training, at the end of December 1916 Second Lieutenant Stanley Purves was posted to Number 19 Squadron based in Fienvillers near Cambrai in northern France at a time when the life expectancy of a pilot arriving in France was 17 days.

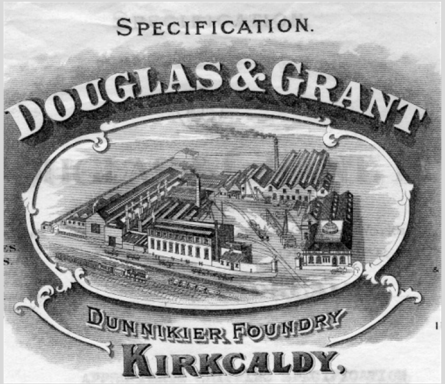
Purves lasted 83 days at the Front. Having participated in five combat patrols - when defects in his planes caused him more problems than the enemy - on the sixth he and two fellow pilots made contact with German aircraft. He came under attack, but it was a fault in his own French-built SPAD aircraft which forced him down behind enemy lines. His engineering expertise enabled him to fix his plane, but before he could take off he was pulled out of the SPAD by German infantry. His war was over.

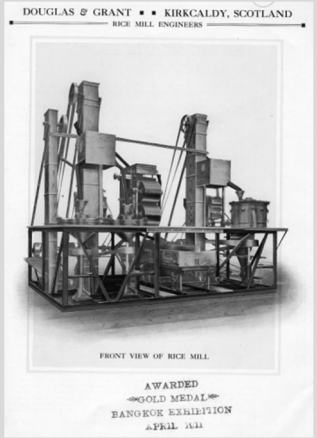
Finding himself in the latest state of the art German prisoner-of-war camp at Holminden in Northern Germany he did what most of his fellow officer inmates did he planned to escape.

In July 1918 Purves and twenty-eight fellow prisoners-of-war made a dramatic escape via a tunnel they had spent six months preparing. More might have escaped but for the thirtieth member getting stuck. Ten, including Purves, made it to the Dutch frontier and freedom. They had pioneered a form of escape that is more usually associated with the Second World War and famously dramatised in *The Colditz Story* and *The Great Escape*. Their escape was the subject of a book published in 1940, '*The tunnellers of Holzminden'*, and an exhibition in the Imperial War Museum, London, in September 2008. The accomplishment earned Purves the Military Cross, presented by King George V at Buckingham Palace in March 1920, one year after he had been discharged from the RAF. (The RAF was created when the RNAS and the RFC amalgamated in 1918.)

To help him reach Holland following the tunnel escape, Stanley Purves carried a small compass (left) improvised from a pair of needles threaded end to end through two pieces of paper and a small piece of wood between the two papers. A piece of thread was wound round the wood so that the compass could be suspended, allowing it to spin freely to locate North. The compass was concealed in a Canadian-made paper wrapper for a Gillette safety razor blade. (Image Number RELAWM16875.0001, reproduced by kind permission of the Australian War Memorial, Canberra) In the quarantine camp in Holland (right) Stanley Purves grins at the camera from his privileged position sharing the nurse's chair. He had good reason to grin: of the 29 who tunnelled out of Holzminden, 19 were recaptured, but he and the others in the photograph made it across the 120 kilometres of German territory to the Dutch frontier. After nine days in the quarantine camp they crossed to Britain by ferry. (Reproduced by kind permission of Alec Purves)

After the war, Stanley Purves worked briefly with a Clydeside shipbuilder before being appointed by his first employer, Douglas and Grant, to manage their Bangkok office. On 20 April 1920 he sailed for Bangkok, his wife of one month, Sybil, joining him shortly afterwards. For three years Stanley Purves settled into a routine divided between office work and the installation of rice mills. In between there was a good social life enjoyed by the small tightly-knit group of ex-pats: golf, riding, rugby, bridge and shooting snipe, deer and pig.





Representing a rice mill manufacturing company in Bangkok might hardly seem adequate preparation for a man seeking to be appointed mechanical engineer in a granite quarry in New South Wales. Assessing the efficiency of winnowing fans, calculating the optimum number of revolutions a shaker might run, experimenting with husk chutes, and appreciating the limitations of a paddy separator: few of these skills would be of much use in a granite quarry. But Stanley Purves showed in Bangkok that he was unafraid to challenge the effectiveness of the equipment his employers were sending out. 'Regarding screw conveyors, these are nicely made but I suggest that the driving belts be fitted at closer intervals, as these shear too easily if the conveyor gets a sudden heavy load'. And his criticism was usually constructive: 'Our standard rice aspirators are not so good as they might be, and seem theoretically unnecessarily complex in construction to me, but I hope to send home some sketches of suitable ones by next mail or two'.[iii]
More important, for almost three years Purves dealt with the installation of mills, engines and boilers, often troublesome, and coped. That would stand him in good stead in New South Wales. (Reproduced by kind permission of the Archive Collections, University of Dundee)

He returned to Britain in June 1923, unsure about a return to Bangkok. Instead he was despatched to Aden for a year. Shortly after arriving there he was struck down with dysentery, and after his return to Britain in February 1924 he suffered a dysentery relapse, at one point entering Kepplestone Hospital

in Aberdeen. There followed 6 months of drift and enjoyment of his two favourite leisure activities: motorcycling and fishing. That drift ended when he travelled to London in late September 1924 to meet Lawrence Ennis who was looking to appoint an engineer for a granite quarry in New South Wales.

Ennis had returned from Sydney in May having signed the contract on behalf of Dorman, Long and Company of Middlesbrough to construct Sydney's Harbour Bridge. Before returning to Sydney to take up his post as Director of Construction, there were six months of intensive planning as Ennis prepared the groundwork for the challenge ahead.

He would later write that during these months he was responsible for ordering £1 million worth of plant and equipment for use in Britain and Australia.[iv] The figure included the infrastructure necessary to transform the disused granite quarry on the northern bank of the Moruya River into a complex capable of delivering the estimated 20,000 tons of dressed stone for the Bridge's masonry features and 120,000 tons of crushed aggregate for the Bridge's concrete requirements.

Ennis did not relish the task of establishing a granite quarry, in particular one so distant from the construction site. Granite quarries were outside his comfort zone. In the memorandum which accompanied their tender, Dorman Long had made clear their reservations about the use of granite, advocating instead the use of *'good concrete'*.[v] Concrete was a cheaper, modern option, and for Dorman Long an easier option. Australia already boasted examples of innovative concrete work: the Beetaloo Dam in South Australia, the great dome of Melbourne Public Library, the Forest Lodge sewage aqueduct in the Sydney suburbs, a concrete bridge over the Mary River in Queensland. Why not concrete pylons on the Harbour Bridge? In a further effort to deflect John Bradfield, the Bridge's Chief Engineer, from granite, Ennis arranged for samples of moulded concrete to be sent from Britain – half a ton's worth – in an effort to demonstrate concrete's versatility. But the Chief Engineer was not for turning. Granite it would be.

Ennis had visited Moruya before leaving Sydney to look over the quarry site, probably in the company of John Bradfield, and brief comments he made to the *Sydney Morning Herald* on the granite quarries of Aberdeenshire suggest he may have done some homework.[vi]

Not only did Ennis have to get his shopping list of equipment for the quarry right. It was important that he appointed the right men. By the time he met with Stanley Purves, his most important quarry appointee was already en route to New South Wales with his family. John Gilmore, the Quarry Manager, was a man of considerable experience, hailing from Harthills in Aberdeenshire, a short distance from Kemnay Quarry, whose silver-grey stone was prized for public buildings and monuments. Gilmore's father had worked at the quarry, and he himself was apprenticed there. It is highly likely that Ennis entrusted John Gilmore with the task of finding his two deputies. Archie Davidson, the quarry face foreman, accompanied the Gilmore family on the *Ascanius*, arriving in Sydney on 1 November 1924. Bill Davidson, the dressing shed foreman, arrived on the *Orcades* two days later.

Ennis was surely intrigued, and probably impressed, by Stanley Purves's *CV*. Surely the man who could rectify a fault in a bi-plane behind German lines, who had used an improvised compass to find his way out of enemy territory, and who had mastered the workings of rice mills, could transfer his skills to the installation of rail track, cranes and machinery in a granite quarry.

Stanley Purves was appointed Quarry Engineer, and arrangements were made for him, his wife and three-year old daughter, Evie, to sail from Liverpool on 20 December 1924, Dorman Long footing the First Class adult fares of £92 each. Before embarking for Sydney, and after another brief hospitalisation, Purves spent a week in Aberdeen visiting the granite quarries in and around the city as preparation for his posting.

On arriving in Sydney on 4 February 1925 Purves was given a week to acclimatise before starting work with Dorman Long at a salary of £500 per annum. He spent a fortnight at the North Sydney site helping erect a mobile crane, before setting off for Moruya on 24 February. The next day he met John Gilmore, the Quarry Manager, and looked over the quarry site. In truth, there was little yet to see, although much hard work had been underway for three months, clearing the quarry face and levelling the ground down to the river, most of it of a manual nature. The *Moruya Examiner* reckoned that 95 men were employed, most of them in clearance work, a few carrying out initial quarry blasting and stone-polishing.[vii]

On 10 March 1925 Lawrence Ennis appeared at the quarry. It was his second visit since arriving back from Britain on Christmas Eve 1924. The pressure was on: Sir Arthur Dorman and Sir Hugh Bell were due in little over a fortnight for the foundation stone ceremony in Sydney. A visit by the two men to the quarry was planned. Meanwhile a dispute with the Operative Stonemasons' Society of New South Wales was making recruiting of masons difficult.

If Lawrence Ennis was intrigued by Purves's CV, how much more intrigued would Purves have been by Ennis's – had he known its full extent. But nobody did, with good reason.

In April 1932, three weeks after the opening of Sydney Harbour Bridge, Ennis gave an interview to the Sydney Morning Herald in which he briefly touched on his early life, describing how, when still a boy, his father took the family from Scotland to America, determined to make farmers of his six sons, but 'he forgot the influence of heredity. All six, following the calling of their ancestors, became engineers'.[viii] *The interview has been used by Harbour Bridge historians as the basis of their all too brief references to Ennis's background.*[ix] *Obituary writers in academic journals, too, wrote of the man of Scottish parentage, who, on his mother's side, came from engineering stock.*[x] *Since Lawrence Ennis was particularly reticent about his early life, there was little else they could use.*

Lawrence Ennis's father was Irish. He had three stepsons and two sons. The call of the engineering ancestry is a nonsense. Ennis's mother was illiterate, signing her name with an X on the death certificate of her first husband. The journalism might have been careless, or Ennis deliberately misleading. He had good reason to be. Ennis was in all likelihood embarrassed by his childhood in Scotland. The man who in the 1920s rubbed shoulders in Australia with State Governors and Governor-Generals and who was twice honoured by King George V, would have had little wish to be reminded of his lowly origins.

Ennis's birth in August 1871 brought to 12 the number living in a single roomed terraced house in East Hermand Row, in the parish of West Calder, 15 miles west of Edinburgh. At age 12 family circumstances dictated that the young Ennis be removed from school and sent down one of the many shale pits which serviced the nearby refineries which produced the candle wax and paraffin oil which were lighting up Victorian Britain's homes. His father's decision to take the family to Rochester in the state of New York in 1887 saved Ennis from a grim future in the shale fields of West Lothian. For Ennis, the United States really was the land of opportunity. In Rochester hard work and good fortune set him on the road which led to Sydney. His talents were spotted by an engineering graduate of Cornell University, Alfred Mosscrop. When Dorman Long head-hunted Mosscrop to modernise their bridge structural shops in 1903, Mosscrop took Ennis to Middlesbrough with him, but it was Mosscrop who was the star attraction. It was Mosscrop who was reputed to be paid more than a Brooklyn banker, and it was Mosscrop who was made a director of Dorman Long. When Mosscrop returned to the United States in 1909, however, Ennis opted to stay in Middlesbrough, and during the Great War began to show his true worth to the company, so much so that in June 1918 he was awarded the Order of the British Empire in King George V's Birthday Honours List for 'services rendered in the development of the steel industry in the north of England'.

BELOW: FROM THE SQUALID TO THE SUBLIME: Lawrence Ennis was born into a bleak landscape of hurriedly built terraced housing (left), open sewers, shared outdoor privies, middens, bings of spent shale whose dust reddened everything and everyone in its wake, amidst an atmosphere polluted by smoke and chemical fumes from nearby oil works. While Director of Construction of Sydney Harbour Bridge, Ennis and his wife, Margaret, lived in art deco style in the Astor in Macquarie Street (centre). At the time of his death in 1938 Lawrence and Margaret Ennis resided in Morpeth Mansions (right), a prestigious apartment block in London SW1, sharing an entrance with Winston and Clementine Churchill. Lawrence Ennis had come far.

Image acknowledgements:

Lawrence Ennis: *Reproduced by kind permission of the Stanton Library, North Sydney*
West Calder housing: *Reproduced by kind permission of David Hedges, per West Lothian Council Libraries*
The Astor, Morpeth Mansions: The author

When Stanley Purves arrived at Moruya Quarry clearance work was still underway. The photograph (left), from the collection of the late Nell Greig, suggests an air of military precision about the exercise, men lining up behind their barrows and on the quarry ledges. Even the horses stand to attention for the camera. Astride the horse he had acquired to transport him to the quarry and marshalling the troops is John Gilmore, the Quarry Manager. Later, Dorman Long provided him with a launch to save him the long horse ride from the family home at Tuffwood on the south bank of the Moruya River. Stanley Purves travelled by motorcycle from his home at Mantle Hill to the quarry. Motorcycles had been an obsession since his youth. He is pictured (right) with daughter, Evie, in the sidecar. His wife, Sybil, was a frequent passenger. According to his son, Alec, 'he scared the living daylights out her' by driving at great speed with her in the sidecar. (Reproduced by kind permission of Alec Purves)

Two hundred miles away in Sydney, John Bradfield's mind was also on the imminent ceremony. He was working on a speech – only part of which he appears to have made on 26 March. In between referring to himself as the '*the arrow on the bow of destiny*' and some astronomical effusion on how the bridge would one day be '*illumined by our Southern Cross, by blazing Orion, and the many starry gems in Sydney's canopy of blue*', he touched on the quarry, but not before a little more effusion: '*The wings of dawn are beating at the break of day; soon the Contractors will make their efforts strikingly visible. Within a month or so, boatload after boatload of granite and granite aggregate will arrive from Moruya at Milsons Point and Dawes Point, day by day.*'[xi]

'*Within a month or so*' - this was not optimism on Bradfield's part, but a lack of realism. Stanley Purves's album of photographs and his diaries tell a different story. The wharf where boatload after boatload of granite would be loaded was still not completed. Dredging in preparation for the second wharf for loading the granite aggregate was not yet underway. Quarry plant was only just arriving from Britain. A start on assembling the plant needed to produce aggregate would not begin until July. The three vessels ordered by the contractors to carry '*boatload after boatload of granite and granite aggregate'* to Sydney were still under construction in Newcastle.

It is doubtful if Bradfield at this stage grasped the implications of his insistence on granite, and doubtful if he appreciated the logistics the contractors had to grapple with to make his granite-faced pylons a reality. It is doubtful, too, if he understood the time-scale involved in clearing the site, erecting the buildings, installing and running in plant, and dealing with the inevitable snags - and the unexpected.

On 27 June 1925 Bradfield made his second visit of the year to the quarry in the company of Lawrence Ennis and C H Graham, Dorman Long's chief electrical engineer in Sydney. The visit coincided with a period of real struggle at the quarry. There had been salvage work and lengthy drying out of plant following rain, gales and floods in May. '*All electrical gear at the quarry was damaged*', wrote Purves in his diary. The construction of workers' housing was only just beginning. Dorman Long were still struggling to recruit masons and a week after Bradfield's visit there would be a three day stoppage by the few they had recruited. Surely it dawned then on Bradfield the scale of what was underway at Moruya.

The day after the Sydney trio's departure, Stanley Purves wrote tellingly in his diary, '*feeling very nervy*'. The pressure was on to deliver the goods, and what Sydney wanted in 1925 was granite aggregate. Without aggregate there could be no concrete, and without concrete there could be little progress. The first of the two engines which would generate the power to crush the granite was not trialled until July, '*a heavy month*', wrote Purves. The pressure began to take its toll on Purves, possibly aggravated by a return of the health issues which had troubled him since Aden. Of August he wrote, '*Over tired early in the month and struggling to keep going*'. When the first load of aggregate was despatched by boat on 10 August, Purves went with it to see doctors in Sydney. On his return to the quarry, he was '*still flat and struggling*', in all likelihood not helped by '*plant difficulties*' and '*constant trouble with crushers*'.

No one felt the pressure more than Lawrence Ennis who visited the quarry on twelve occasions during the first two years of its existence, a measure of his determination to make sure the Chief Engineer got his granite pylons, a measure, too, of the teething problems experienced with the machinery. On four of those occasions, John Bradfield accompanied Ennis. Alfred Martin, Ennis's chief assistant in Sydney, also made four visits - all this, despite the rigours of a lengthy drive from Sydney. (In a report produced by the NRMA on the Princes Highway in 1926, road conditions between Sydney and Moruya ranged from *'bumpy'* and *'pot-holey'* to *'excellent'*, while drivers were warned to exercise care *'avoiding loose spikes in bridges, especially the Falls Creek Bridge'*.[xii] In March 1926 an adventurous lady motorist who drove from Brisbane to Melbourne noted that she took almost 7 hours to drive from Sydney to Nowra, and another 6 hours the following day to Moruya, at speeds averaging between 12 and 26 miles per hour, depending on road conditions.[xiii] The two miles from Moruya to the quarry was via a road which the local newspaper as late as July 1928 described as '*deplorable*'.[xiv])

Never in his public lectures and presentations – he gave many - did John Bradfield make any reference to difficulties at the quarry. Instead, his audiences were reminded of the beauty and strength and quality of Moruya's granite. They were shown slides of immense blocks of quarried stone, of impressive plant and the machines which dressed and crushed the granite, of the skilled and expert workforce, and of the specially commissioned ships which brought the granite to the bridge site to feed his pylons, '*the acropolis of Sydney*'.[xv]

Nor did his listeners hear any appreciation of the men who laboured hard to establish the quarry. On the one occasion when Bradfield referred to John Gilmore by name, it was not to sing the praises of the Quarry Manager. It was to sing the praises of the quarry: '*He told me that at Aberdeen he would have had to wait months to get stones from the quarries there of the dimensions required for the Bridge. Here he just quarried in at the face and cut blocks of almost any size*'.[xvi] Proof, if proof were needed, that the Chief Engineer had chosen well. There must have been many occasions when the Director of Construction wished he had chosen otherwise.

SCOTLAND 5 AUSTRALIA 2: On 10 June 1926 Lawrence Ennis and John Bradfield visited the quarry, bringing with them a photographer, probably Robert Bowden of the New South Wales Public Works Department. The two men were there to welcome an advance party of masons, quarrymen and their families who had arrived from Aberdeen - 76 new residents for Granite Town. The following day a series of photographs was taken at the quarry. Standing on either side of a massive block of granite split by the plug and feather method, from left to right: Archie Davidson, John Bradfield's son (who probably acted as chauffeur for the Sydney party), John Gilmore, Lawrence Ennis, Stanley Purves, Bill Morrison, and John Bradfield. The arrival of the quarrymen and masons from Aberdeenshire - a second smaller group would arrive shortly afterwards – may have eased the problem of producing dressed stone, but Purves and company still struggled with the crushing machinery's inability to supply enough aggregate for the Bridge's concrete requirements. (Reproduced by kind permission of the Stanton Library, North Sydney)

[i] *Moruya's golden years*, A. V. Colefax, 1997, page 4
[ii] *Fighter heroes of World War One*, Joshua Levine, 2008, p58
[iii] *Stanley Purves, correspondence with Douglas and Grant*, 11 July 1921, 13 May 1922
[iv] *Sydney Harbour Bridge: The story of construction*, Lawrence Ennis, 1932, reprinted in *'Main roads'* 1972, page 84
[v] *Memorandum accompanying Tender of Dorman, Long & Company*, 1924, p9
[vi] *Sydney Morning Herald*, 19 March 1924
[vii] *Moruya Examiner*, 14 March 1925
[viii] *Sydney Morning Herald*, 8 April 1932
[ix] *The Bridge*, Peter Lalor, 2005, pp155-156; *Bridging Sydney*, ed Caroline Mackaness, 2006, p29
[x] *The Engineer*, 13 May 1938
[xi] *Ceremony of setting of the foundation stone for Sydney Harbour Bridge at Dawes Point*, John Bradfield, 26 March 1925
[xii] *Sydney Morning Herald*, 8 July 1926
[xiii] *Miss Freda Bage's journey*, in *The Queenslander*, 6 March 1926
[xiv] *Moruya Examiner*, 14 July 1928
[xv] *The Sydney Harbour Bridge, Specifications and tenders*, radio broadcast, 28 October 1931
[xvi] *Construction of sub-structure, Radio broadcast*, John Bradfield, 9 December 1931

Stanley Purves, the Quarry Engineer. Part 2

by Bill Glennie

It took two years for the quarry to be running as Ennis and the quarry management team wanted it following some final 'tweaking' done to the crushing machinery in November 1926. Maintenance would now be the order of the day, but it would not involve Stanley Purves.

When Lawrence Ennis appeared at the quarry on 8 November 1926 it was not granite he had on his mind, but cement. Ennis, not known for making bad decisions, had made a bad one in 1924, and he needed Stanley Purves to put matters right.

Before sailing for Britain in March 1924 after signing the Bridge contract, Ennis had checked out sources for the three constituents of concrete: aggregate, sand and cement. The quarry at Moruya would take care of the aggregate. Ennis ensured provision of sand by arranging for Dorman Long to take a shareholding in a company floated in June 1924, the Nepean Sand and Gravel Company. That left cement.

Ennis did meet with representatives of the recently formed Kandos Cement Company of New South Wales. However he continued to shop around, and found an alternative source further afield in Tasmania. On his return to Britain, Ennis recommended to the Board of Directors of Dorman Long that '*the company should take an interest up to £25,000 in the Tasmanian Cement Proprietary Company Ltd'*. A cable was sent to Alfred Martin, Ennis's chief assistant in Sydney, to visit the Tasmanian works and report back on the output, quality and suitability of the cement for the bridge contract.[i] Martin must have liked what he saw and what he heard, for ten weeks later Ennis was reporting to the Board that the New South Wales Government had agreed to the purchase of cement from Tasmania, and arrangements had been made with the Tasmanian company for the necessary supply for the duration of the contract.[ii] And all this before the company had gone into production.

The Tasmanian Cement Proprietary Company Limited was the brainchild - perhaps not the best choice of word in the light of what would later transpire - of Edward Giles Stone, an Australian engineer who is only now attracting the attention he deserves. He has been variously described as '*innovative*', '*an eccentric with a gift for inventing*' and '*something of a risk-taker*'.[iii] Most of the risks he took were in reinforced concrete. Having worked for the New South Wales Sewerage Construction Department and the Sydney Harbour Trust, Stone branched out on his own in 1907, styling himself '*consultant engineer and architect*' when he opened an office in Sydney.

In 1920 Edward Stone moved to Tasmania as consulting engineer for a dam being built for the Tasmanian Hydro-Electric Company. Very soon he shifted his attention to the manufacture of cement. He was a key player in the establishment of the Tasmanian Cement Proprietary Company Limited in October 1923, and was responsible for its decision to site its works at Railton in the north of the island, where there were rich limestone deposits, conveniently close to the Latrobe shale fields. For Edward Stone patented a process to use oil extracted from the distillation of the shale to fire the cement kilns instead of coal. Shale residue from the distillation would be added to the crushed limestone in the kilns instead of the usual clay. The clinker produced would be crushed into cement. There would even be a surplus of crude oil left for sale. It was an innovative and attractive proposition. But would it work?

Following his return to Sydney, in February 1925 Ennis caught the train to Melbourne and crossed to Tasmania to make his first inspection of Dorman Long's latest business investment. He found Edward Stone in confident mood. A few days before Ennis's arrival, Stone had played host to the State Governor of Tasmania and local dignitaries. While his wife and daughter treated the guests to afternoon tea, Stone spoke with a journalist from the *Hobart Mercury*. '*As the company had secured a big contract with Dorman, Long and Company, the contractors of the big Sydney bridge, the output for some time would be all absorbed in meeting the demand, and under the contract terms the supply of cement must be commenced in May*'.[iv] Production would start in a few weeks, said Stone.

Lawrence Ennis visited the shale mines at Latrobe, entering one of them. He inspected plant for crushing and storing the shale before its delivery to the oil works. He examined a sample of the oil produced by a model retort and examined, too, the residue shale which Stone described as '*a suitable element in the manufacture of cement*'. For Ennis, the production of crude oil as a by-product in Stone's scheme was a bonus. Entering the shale mine might have brought back unpleasant childhood memories, but Ennis knew well the potential of shale-produced oil to

generate profit, and that factor might well have played its part in attracting Ennis to Stone's scheme.

Following his inspection of the shale mines at Latrobe and the cement manufacturing unit at Railton, Ennis '*estimated that the plant would be ready to operate in the course of the next few weeks and the cement would be of a quality suitable for use in the construction of the Sydney Bridge*'. The first cement produced would take two months to mature, Ennis explained, and then it would be ready for testing and inspection by John Bradfield, who would have an inspector located at Railton continuously in the early stages of the contract. '*Generally speaking, I am very pleased indeed as a result of my inspection*'.[v] If he was concerned that no cement had yet been produced, he chose not to say so.

Two months later it became clear that Ennis's confidence in Stone and his limestone-shale combination of cement production was misplaced. '*Bad luck has overtaken the Railton cement works*', announced the *Hobart Mercury*. '*It appears that the attempt to use shale for oil purposes in connection with the cement production has been written down as a failure, and that before one ounce of cement was produced*'.[vi] Stone was fired and Dorman Long took charge of the concern.

In the short term Ennis had to find a new source of cement, and Kandos stepped into the breach. In the long term, Ennis was determined to rescue his company's investment in Tasmania, but there would have to be radical reorganisation and investment in new plant to produce cement using traditional methods, and Ennis wanted Stanley Purves to manage the change. Having mastered the installation of rice mills and grappled with the challenge of crushing the toughest of stone, he must now become proficient in the art of cement manufacture. He did, but it took some time.

Clearing-out Sale
OF
Household Furniture

H. J. THOMSON, has received instructions from Mr. Purves, who is leaving the district, to sell at his residence (Mantle Hill) on

Wednesday 12th Jan.
AT 2 P.M. SHARP

the whole of his household furniture, comprising:

2 Bedroom Suites, Beds and Bedding
Comfortable Settee, 2 easy chairs
Sea Grass Chairs, Chinese Cane Chair
Bureau Desk, Carpets, Linos
Mission Dining Room Suite
Kitchen Dresser, Table Chairs & Utensils
Nice Bedroom Stove

TERMS CASH

Kindly note the time—punctually at 2 o'clock.

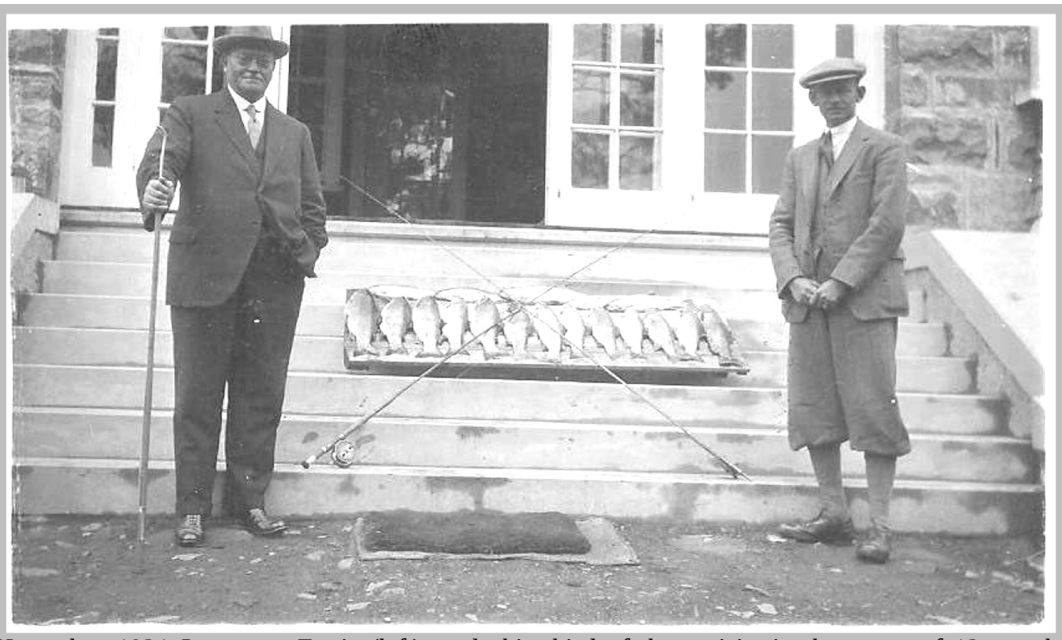
Having discussed with Purves in November 1926 the possibility of a move to Tasmania, Ennis returned at the end of December to finalise arrangements. He wanted Purves in Tasmania as soon as possible. The family had little over three weeks in which to pack and advertise the auction of household furniture in the Moruya Examiner (left).

The sale of Purves's BSA motorcycle with sidecar was advertised separately. It went for £50 cash with a promise of £5 to follow. It never did.

There was a gathering of friends in Moruya and a presentation of a travelling rug. On 15 January 1926 Stanley Purves left for Sydney to meet up with Sybil and daughter, Evie, who had gone ahead. They took the train to Melbourne and from there they crossed to Tasmania.

A new company, the Goliath Portland Cement Company Limited, was registered on 31 July 1928, and acquired the assets – the cement and shale works – of the Tasmanian Cement Company, although the shale works were sold off in 1931. Dorman Long undertook to act as General Managers of the new company for five years, Ennis serving as a director. Despite the difficulties and despite the downturn in the demand for cement, Goliath was able to report an increase in profits for 1930. The high quality of the Railton limestone really did produce high quality cement - it still does. That much Edward Stone got right.

Whatever the rights or wrongs of Ennis's investment gamble in 1924, he had ensured the success of the Railton works, and though he might not have realised it at the time, he had helped lay the foundations of Tasmania's cement industry. He made one last visit to the island in February 1932, one month before the Bridge's opening. The chairman of the directors of Goliath presented him with an inscribed silver desk clock and expressed regret at the loss of his '*valuable services*'.[vii]



In November 1931 Lawrence Ennis (left) made his third of three visits in the space of 12 months to Tasmania. There are few photographs of Ennis relaxing, but on this occasion he had good reason to feel relaxed. He had just told Stanley Purves (right) that he was pleased with the position of the Goliath Portland Cement Company. An embarrassing error of judgement had been put right – and he and Stanley Purves had bagged 18 trout on Tasmania's Great Lake. Purves is wearing his plus fours - 'knickers and long socks, most unorthodox dress in Australia at this time', commented Bob Colefax disapprovingly. (Reproduced by kind permission of Alec Purves)

Thanks to Ennis, Stanley Purves and his family found a permanent home in Tasmania. The island had excellent trout fishing, golf, tennis and shooting, and a company in which Purves had invested too much time and effort to walk away from. As Goliath went from strength to strength, so, too, did Purves. When Lawrence Ennis resigned from the Board of Directors in 1932 he was nominated to fill the vacancy and was appointed General Manager. He later served as Chairman from 1955 until his retiral in 1967. He was a well known figure in the Devonport area and served as the second president of the Devonport Chamber of Commerce and Master Warden of the Devonport Marine Board. When he was killed in a motor car accident in June 1969 he was described in a local newspaper, appropriately enough, as '*one of Latrobe's most colourful characters*'.[viii]

He, too, played his part in salvaging Stone's Railton misadventure. On his return from an eight month fact-finding tour overseas in 1935, the Welfare Committee of Goliath organized a function in a Railton hotel to welcome him home. The chairman of the company was there, as were the management team, technical staff and over one hundred workmen. One speaker said that '*they all knew that if it were not for Mr Purves there would probably be no cement industry there today. Mr Purves had a tremendous capacity for work and they were grateful to him for establishing the industry on a*

firm footing. They were also immensely proud to know that he held a high position in the cement world of Australia'.[ix]

Bob Colefax was surely overhasty in his dismissal of the quarry engineer.

The author is grateful to Alec Purves of Tasmania for material relating to the life and career of his father, Stanley Purves, and to John Gibson of Sydney for introducing him to the work of the remarkable Edward Giles Stone.

[i] *Dorman, Long & Co, Board of Director Minutes*, 17 June 1925
[ii] *Dorman, Long & Co, Board of Director Minutes*, 9 September 1925
[iii] *The ovoid sewer aqueduct at Breakwater, Geelong, Australia*, Allan Willingham, 1991, p93; *Wartime relics come through their test of fire*, in the *Sydney Morning Herald*, Andrea Dixon, 22 February 1994
[iv] *Hobart Mercury*, 14 February 1924
[v] *Hobart Mercury*, 28 February 1925
[vi] *Hobart Mercury*, 29 June 1925
[vii] *Hobart Mercury*, 18 February 1932
[viii] *The Mercury*, 17 June 1969
[ix] *The Advocate*, 6 December 1935