

SUMMARY OF CAREER 1935-83 written August 93.

MAIN ACTIVITIES, PROJECTS AND POSITIONS HELD

AS A PROFESSIONAL ENGINEER.

The following is contained in the main story but at this time it needs to be abbreviated chronologically for easy access to any events.

- 1929 Completed Royal Melbourne Technical College Diplomas
1929-31 Mechanical, Electrical and Civil Engineering.
- 1934 Melbourne University degrees in Mechanical and
Electrical Engineering, plus extras for a Science Degree.
- 1935 Employed Malcolm Moore Crane Builder, design of
cranes. Applied for 2 year cadetship with BHP for
experience in steelworks, mines and quarries. One
of 8 accepted, first since 1928, sent to Whyalla SA.
- 1936 In charge of construction of a new quarry at Iron
Knob with electric traction, ore crushing, conveying
to loading bins, for trains to Whyalla SA, railway
extensions.
- Transferred to Newcastle for six months experience at
Steelworks and coal mines.
- 1937 Appointed Officer in Charge of Devonport Limestone
Quarries, an executive training position for one year.
Built a new quarry to increase production.
- 1938 Transferred to Kalgoorlie as Engineer in Charge of
a new gold mine treatment plant and underground
Haulage with head frame and transfer of an
electric winder from Bendigo Victoria. On completion, sent
on a study tour of all gold mines in Western Australia.
- 1939 Transferred to Newcastle to develop a new system
of quarrying and grading magnesite at Fifield for
refractories in steelworks. Declaration of War, and
gold top priority. Appointed Engineer in charge of building
new gold mine treatment plant at Cowarra NSW at maximum
speed, second hand equipment, motors, power station used where
possible. All structures built in timber to save steel.
First gold bars produced in 9 months.
- 1940-41 Appointed Officer in Charge of a new limestone
Quarry shipping jetty and township at Rapid Bay S.A.
completed in 2 years.
- 1942 War at a critical stage, duplicate to electric steel,
forge plant and foundry at Pt Kembla required
at Whyalla. Appointed superintendent of this plant
then under construction. Spent six months at Newcastle and
Als Pt Kembla, studying all operations and recruiting staff
to go to Whyalla. Coral Sea Battle won and invasion of
Australia averted. The plant ready to start but was not
started as risk decreased.
- 1944 Appointed assistant to the General Superintendent
all Whyalla operations.
Given varied responsibilities, BHP manpower control
representative.
Given the task of designing and building the most
modern dairy for milk supply to 12,000 people in a desert.
Transformed one square mile into irrigated pastures for 600
stock. Mechanised control of cows for milking, feeding
pasteurising and bottling of milk.
Planning future iron ore quarries along Middleback
Range.
Planning future layouts for a steelworks at Whyalla.
Development of a safety organisation for all
Whyalla operations

1945 Assisted Superintendent of Shipyard to improve production material handling work practices and efficiency.

War ended, offered job of building Yampi Sound ore plant, refused. Decision to expand Pt Kembla not Whyalla, therefore no future. Started looking for a job in Eastern States.

1946 Applied for advertised position Mine Manager King Island Scheelite and immediately accepted.
Transferred to King Island and responsible for all operations at mine, Head Office Melbourne.
Redesigned and built the primary ore storage bin and crushing plant as existing one would not work on very muddy ore.
Introduced floatation to improve recovery and developed a pilot plant to treat the concentrates and produce artificial scheelite.
Power was from two worn out diesel engines with no spares in Australia. After three major failures, Designed replacements and had them made in Melbourne.

1947 Flew to Lae New Guinea to buy 3 new diesel electric power plants by auction from war disposals, still in 56 cases. Installed on arrival averting a complete shutdown.
Developed a submerged pipe line to bulk import fuel oil instead of 40 gallon drums, using a small navy tanker.
Politics of directors resulted in giving 3 months notice and moving to Sydney with no job but sufficient funds from sale of King Island Shares to build a house on 2 blocks of land. Bought one then a second block of land at Sylvania.
Designed and built a 4 bedroom house in 4½ months while still under wartime material controls. Bought a car under same controls.

1948 Tried a few small consulting jobs but not satisfactory.
Designed and built two more houses on cost plus basis.
Because of shipyard experience was invited to consult and report on the purchase of a war time navy repair yard by Clyde Industries for expansion of activities.
Report accepted and offered position as General Manager at a good salary and conditions. Waited 4 months while sale completed on full salary to take up the position.
After two weeks at the shipyard I was offered position of Works Manager Clyde Engineering to resolve a 9 month strike and get control of two large losing contracts. I required the full backing of the board, as conditions at Clyde were difficult, and drastic action was needed, I was assured of this.

1949-50 Strike settled by introducing a profit sharing system to Unions.
Status of the two contracts were properly evaluated, both heavy losers. The largest for 50 locomotives renegotiated on a cost plus basis and reduced to 20 and the other had to be finished as quickly as possible. Used monthly measurements of work completed for control. The heavy losses were avoided. I got considerable credit and control of a hostile largely ex railway staff.

1951-52 Clyde held two large orders for main line diesel electric locomotives, 11 for Commonwealth and 36 for Victoria, but held up for US Dollars to import parts from General Motors. An agreement with the Commonwealth Government to progressively reduce the imported content allowed the contracts to proceed.
The plant was a wreck from War use and needed a very major rebuild. I concentrated on getting this ready while teams from Clyde and GM were exchanged to study and help, as this was the first time GM had licenced anyone to build, but, very major design changes needed to suit light weight Australian conditions.

143

It all worked extremely well and the first locomotive was built from issue of drawings to trial in 108 working days with assembly in the open building with the first new crane of two to lift 120 tons. Both contracts were completed on time with large profits.

1953

The next step was to build the electric motors and it was my turn to go to USA on a study tour for 4 months going to all GM plants. On return built a new motor shop, metrology laboratory and metalurgy laboratory to control all operations. We built our first motors in six months which went into Pakistan locomotives.

1955

While in USA studied diesel hydraulic locomotives for sugar industry and on return started building them.

The works at this stage was very modern in building, plant and equipment. We added a steel foundry to cast motor frames and bogies, axle boxes and an aluminium foundry for fans. All previous frames were fabricated and heat treated.

1956 Built 57 locomotives in this year a record for all types.

1957

The Clyde Board overpriced their locomotives believing the GM name would retain the business.

Instead they brought in competitors losing a major part in NSW and New Zealand. They reacted by bringing in GM Executives to cut costs instead of prices. GM were charging full spare part prices for their components. In the end I resigned but was offered Chief Engineer of Clyde Industries which I rejected after 9 years with them. Offered position Technical Director of Malco Industries and seat on Board. This was mainly a foundry industry in malleable irons supplying the automotive industry and its own parts for pipe fittings and material handling.

The first major project was to examine a large contract for storage and conveying phosphate to shipping at Christmas Island. The board were concerned about the design of the 7,000 ton bins even though they had been checked by Link Belt USA and British Phosphate engineers. I was concerned about certain design features and asked the board to get a second opinion. I brought in Jim Corlett. His report confirmed that the sides would collapse out, the bottoms would be pulled down and the legs would bend and collapse. The damage could be very serious and the costs and liabilities.

He was then asked to design bins that would be safe, changing from square to circular bins. Initially rejected, by British Phosphate, they were finally convinced and the cost less and gave no trouble.

1961

A serious depression halved the workforce. Engineering involved a number of major plants built by the South Australian plant. Re designing the galvanising plant, built a tilting pulverised coal fired malleable iron furnace.

1962

After 5 years and no possibility of any overseas trips it was apparent that the Managing Director had no intention of retiring so I discussed a proposal by Corlett to join his group of consultants specialising on the mechanical and electrical and services aspects of city buildings. Did a year course in air conditioning at NSW University but other partners would not support this idea.

1963 Early this year I had a call from Ken Humphreys to have lunch with him. He offered me a way out of Malco. As receiver and Managing Director of Tulloch one of the oldest engineering companies in Australia needed someone to revive the company. He had a contract for 120 double deck passenger cars for NSW railways, a new concept not built before. He had the finance from the bank, but the plant was nearly shut down, a wreck from years of neglect. He needed someone to take charge and rebuild it and carry out the contract in a strictly limited time as the bank finance was at very high interest rate and had to last until the start of delivery of cars and cover all tooling equipment and preparation of the works. The offer was much better than I had and included a bonus if I could complete the contract in 3 years, a 3 month world tour of my choice of itinerary, first class for my wife and myself.

The first car was delivered in six months from issue of drawings and contract completed in the time of 3 years with a large profit paying off the bank loan completely. I recruited a new staff from around Sydney, made a deal with the unions, 12 in all, with monthly meetings to keep them informed. There were no strikes or industrial trouble in the 9 years I was there.

1964. As soon as the production was established they sent me on a world study for six weeks, Europe, Canada, USA, and Japan covering aluminium rolling stock and diesel locomotives.

1967 During the three years of steady production the whole works was cleaned up and brought up to an acceptable standard. At the end of the contract there was no follow on to employ 1,000 people. I was as General Manager responsible to find new products to use our skills and plant.

The products were a wide range of rolling stock built in aluminium, Sulzer diesel electric locomotives, fabricated bogies, cast aluminium and combined form work and final finish panels for city buildings, diesel rail cars, a rebuilt foundry for a new design of water pipes and large powerstation pipes, industrial buildings, grain handling and drying, Navy aluminium boats.

1971 We tendered for 7 interurban double deck cars and 110 Eastern suburbs double deck cars for NSW Railways and although the lowest price, this contract went to our opposition because of politics.

We were awarded a diesel passenger rail car contract with almost impossible specifications which lost Tulloch a large amount. We had pioneered the double deck cars which would have kept us employed for years if treated fairly by NSW Railways. I was given a consulting contract. I wrote my own conditions and was kept on as a Director. A new management team was put in with no experience in heavy engineering. I travelled the world on various projects and did what they wanted. One was to reorganise a Structural Steel Company that they bought with no proper examination of its contracts or people.

I was called into fix it. There were 25 losing contracts and the management were defrauding it.

I eventually got control and sacked the management team and finished all the contracts.

I was involved in the preparation of tenders for 600 Melbourne trams in association with Mitsubishi Japan and a road freight company in Melbourne visiting Japan twice. We lost to ASEA Sweden.

After checking my design in Germany we won a contract for 120 refrigerated containers design in aluminium but acceptance was not taken up.

1975 At no notice Tulloch was shut down. I had the job of trying to sell the container contract and various other projects. I had my contract renewed and for

2 years but this was the end. The accountant and myself were the last to leave.

1976 Four of us formed a company and bought the building division, rented a workshop and attempted to continue their prefabricated school, modular buildings but public works dept gave the contracts to Newcastle dockyard and we had to take difficult specialized buildings such as dental clinics, two storey and private school buildings.

I had a number of trips to New Guinea to obtain and build radio telephone stations to be put on tops of mountains. The first year's contract was for 40 to my designs, with 2 years to follow. We employed up to 25, but could not continue with our regular school buildings and after 2½ years had to close down.

This was the end of my consulting work for the present.

1978 The double deck bonus I earnt in 1966 was still invested so I planned a world tour to use it, 12 years late, but the same basic itinerary only it lasted 5½ months but paid for by this bonus.

1979 Return from overseas I started a 4 year art course as a hobby. I was approached by Corlett group to do consulting on old buildings one over 100 years old was the Gresham Hotel opposite the Town Hall, Sydney

1980 The next, which took over a year was to take charge of the building of a new brewing plant for Tooths Brewery involving 42/90ft high stainless steel tanks holding 600 tons each. As this contract was never let properly I got the job of developing a typical model contract and specifications for future contracts of this type.

1981 I was invited to consult on the largest galvanising plant in Australia by Reg Russell, which had recently been built and would not perform properly and had serious built in faults although built by a reputable combustion engineering company.

The bath of molten zinc 700 tons was 45ft by 25 ft and 7 ft deep. It was fired by gas with a temperature of 650 degrees C.

The zinc was overheating at the top and freezing at the bottom. It would only work one shift instead of three. The main fault was a layer on insulating bricks had been left out next to the steel casing causing a great loss of heat and the freezing, with two shifts to melt the bottom zinc and overheating the top. To correct this insulation had been put on the outside, overheating the steel casing with a risk of bursting.

I submitted a report of six corrective actions that would solve the problem, as the tank could not be emptied. To remove the outside insulation for safety, rearrange the gas burners also the exhausts, alter the roof to shield the top edge of brick lining and build 3 motor driven ceramic impellers to circulate the zinc in the tank and seal the pit to keep the heat in.

They settled the damages out of court but not enough to do the work so part was done and the rest deferred as they had a small work load for one shift.

1981 The next job was a problem building, the Qantas flight kitchen at Mascot which could not be solved for 11 years. I was asked to study and report on the cause of the water leakage and how could it be corrected, materials, methods and costs. Most important how to collaborate with all the various kitchen supervisors and protect food operations from contamination by some means without disrupting the kitchen.

I worked out the solutions and the methods to use to do this work and submitted a report. Qantas and my principals accepted my solutions and gave me the job of running the whole project, including obtaining supplies of materials,

epoxy cements tiles from Sweden using Qantas planes from Amsterdam.

1982 The whole work proceeded smoothly working day and night screening all work areas, from food preparation. It took nearly 1½ years from start to finish and was completely successful. There was 11 acres in the 5 story building but only one floor, the kitchen that leaked to all floors below through the joints between 12 sections and also all pipes through floors also leaked. This whole floor was washed down every night. It had a capacity of 60,000 meals a day for 24 airlines and worked 3 shifts 7 days a week.

1983 The only other consulting I have done is the design swimming pools for a builder who was not satisfactory and a risk from liability costs over which I had no control and would not insure against or take.
This was the last consulting work of my career.

1984 Having spent a year designing and building our very successful heated indoor swimming pool I designed one for a customer of our pool builder, adapted to his site, and one for Laurie and Jan, and for their friends which was built at a cost of \$110,000 nearly five times the cost of our pool

I diverted from the chronological sequence of my history to include a summary of the main projects and appointments from 1925 to 1985

I have also given a brief history of the company BHP that contributed so much to my experience. It was 1935 that they celebrated 50 years since its beginning, and the year I joined them as a cadet engineer for two years training and experience in all of the company's activities.

I was very fortunate in knowing I wanted to be an engineer from the age of 12 years and pursued this objective all my life from then through education, executive positions in large companies and directorships.

BHP has become the largest company in Australia and has outgrown this country. It is expanding into North America, South America and Asia.

There is one major event that shaped my life that should be mentioned. Because of a coincidence I had two weeks to stay in Newcastle at the end of my cadetship before going to Tasmania to manage the limestone operations. I then met a girl by chance and fell in love with her. She became my wife, the Mother of our children. Her love for me, companionship and interest in my activities was most supportive over the past 57 years of a very successful marriage.

I resume my story up to my 83rd birthday, 14th Jan 1995.