



RAILWAY CIVIL ENGINEERS WHO WERE PRESIDENT OF THE CAPE SOCIETY OF CIVIL ENGINEERS 1903 TO 1905, THE SOUTH AFRICAN SOCIETY OF CIVIL ENGINEERS 1909 to 1947 AND OF THE SOUTH AFRICAN INSTITUTION OF CIVIL

ENGINEERS FROM 1948 TO 2004.

It will not be possible to give the full details of the careers and achievements of the various Presidents who were railwaymen as due to the nature of their work, and, in the beginning the development of the country as far as roads and railways were concerned they were stationed and resident on projects countrywide. Further initially, the Headquarters being at Cape Town, it was not possible in some instances for them to deliver their Presidential address in person and it had to be read on their behalf.

The full presidential addresses of all the past Presidents of the Society and the Institute are bound together with their photographs and are available in the Headquarters of the South African Institute of Civil Engineers.

There was for many years a desire expressed in the Cape for the formation of a Society for Civil Engineers. The inaugural meeting and address was held on the 13th May 1903. Present at this meeting were amongst others A. Grant Dalton, M. Robinson, A. Tudhope, A. Tippet, all railwaymen, who were duly elected Members and eventually were to become elected Presidents of the Society in subsequent years.

It is interesting to note that from 1903 up to 1984 twenty-three railwaymen i.e. 28% were Presidents of the SAICE.

Further, up to 1956 the past Presidents were mainly in the employ of Government, Provincial and Municipal Services. Thereafter there was a definite swing to Academics and Engineers in the employ of Civil Engineering Contractors and Consulting Engineers.

This void in railway engineers being elected to Council and actively involved in Council affairs of the Institute may be due to the formation of the Railway

and Harbour Division of the Institute in 1961. However, although not being elected to the post of president of the Institution many railway engineers held various portfolios in the Institution's Council.

As can be expected in the initial years of the South African Institute of Civil Engineers the subject of the President's address was in the sphere, of their employment, that they knew best.

There are also past Presidents of the Institute who commenced their career on the South African Railways among whom were the academics Dirk de Vos and Jeremia Jennings who because of the interesting problems that arose in their employment on the railways and the dearth of knowledge on the problems that they encountered that they decided on an academic career.

In later years Ron Watermeyer also previously on the railways was elected President of the Institution. Should any person wish to research the development of the Institution and its constitution, the development of the railways, and the development and the use of the various permanent way materials and the development of the harbours in South Africa it is recommended that the first publications to be read are the Presidential addresses and the papers delivered at the meetings of the Institution.

Born	Died		
1903	John Brown 1905	Cape Government Railways	1844
1905	Alan Grant- Dalton 1915	Cape Government Railways	
1908	Arthur May Tippet	South African Railways	1859
1910	Harry Horne Elliot 1914	South African Railways	1868
1912	Alfred Dryden Tudhope 1934	South African Railways	1863
1915	James Mackenzie 1941	South African Railways	1862

1918 1863	Mansergh Dias Robinson	South African Railways	
1923 1945	Angus John Beaton	South African Railways	
1926 1879	Theodore Heinrich Watermeyer	South African Railways	
1929 1868	Robert Catherwood Wallace	South African Railways	
1935 1950	George Hiam Whitehouse	South African Railways	1875
1940 1878	William Arthur Moyers	South African Railways	
1941	William Arthur Moyers	South African Railways	
1942	J S deV von Willich	South African Railways	
1848 1900	William Marshall-Clark	South African Railways	
1950 1891	Alfonso Frederik Bruyns-Haylett	South African Railways	
1953 1894	Pieter Johannes Louw	South African Railways	
1956 1897	Henry Robert Moffat	South African Railways	
1958	J.E.B.Jennings	South African Railways	
1964 1905	Fred Jackson	South African Railways	
1966	A Mervyn Steel	South African Railways	
1969	Dirk de Vos	South African Railways	
1984	Hendrik Loots	South African Railways	

2004 Ron Watermeyer

John Brown CMG MICE (London) was born in Marlborough, Wiltshire on the 27th April 1844 and was privately educated. He then served his pupilage and indentureship under Sir John Goode and was employed on the Portland Breakwater and temporarily as Assistant Engineer on the Bristol and Exeter Railway. He came to South Africa from Ireland in 1873 and was employed as an Assistant Engineer and promoted to District Engineer on the Western and Midland Section of the Railways in 1876 and by 1882 promoted to Resident Engineer. He was appointed Acting Chief Engineer of open line railways on the Cape Government Railways in 1884 and in 1890 succeeded Henry John Pauling as Engineer in Chief over 1889 miles of single and 15 miles of double track. In 1895 he was commissioned to Europe to report on the construction and maintenance of 2ft 6in and 2ft gauge railway lines. They reported that it was practical to construct such railway lines in South Africa. He retired from the service on the 30th June 1904 after 31 years service. He lived in Rondebosch Cape Town. During his term of office the track mileage was extended by 479 miles. This would have been more but for the intervention of the Anglo Boer War 1899 to 1902 in which for exceptional service he was awarded the CMG. Mr J. Grant Dalton, succeeded him as Engineer in Chief. The Cape Society of Civil Engineers was established, after many years that a desire had been expressed to form such a Society, at Cape Town on the 14th January 1903. He was elected the first President of the Society at the 4th inaugural meeting held on the 13th May 1903. The membership of the Society was 120.

His Presidential address was that he came to South Africa thirty years previously and that he was honoured to be elected President and expressed the hope that he would not disappoint the Society during his term of office and that it would grow from strength to strength and be a means of meeting together, to rub shoulders, knock off any angular points that may exist and disseminate ideas.

Alan Grant Dalton. M.I.C.E (London) came from a Hampshire country family. Before coming to South Africa he worked in Brazil. He joined the Cape Government Railways as a Construction Engineer in 1875 and appointed Resident Engineer in East London in 1898. In 1899 he was Field Engineer on the Port Elizabeth-Avontuur narrow gauge railway line and in 1901 was appointed Chief Resident Engineer of the Grand Junction Railway with Headquarters in Port Elizabeth and in the same year Assistant Engineer in Chief of the Cape Government Railways. On the retirement of John Brown in 1904 he was appointed Chief Engineer of the Cape Government Railways

with Arthur May Tippet appointed as Assistant Chief Engineer in 1907. In 1910 with the Union of South Africa and the consequent union of the railways and the appointment of Mr Tippet as the first Chief Engineering Advisor (now Chief Civil Engineer) to the South African Railways he resigned. It was purely because of his age, at the time of Union, that he was not appointed as Chief Engineering Advisor. He was described by the secretary to the General Manager of the Cape Government Railways as accessible, methodical and even-tempered. He was elected President of the Cape Society of Civil Engineers for 1905. In his presidential address he expressed the desire that a Benevolent Fund be established to tide Members over some period of difficulty and so help to make a fresh start. He expressed that the days of guessing and the rule of thumb are gone and the young Engineer of today must keep up with developments in his sphere of work with constant study and observation and not to despise the helping hand of those that have already climbed the ladder to success. He then gave a brief history of the development of the railways over a 50 year period in the Cape Colony that stretched from the Orange River on the Northern boundary and bounded on the North East and East by Kaffirland and the Colony of British Kaffraria,.

He died in February 1915.

Arthur May Tippet M Inst CE (London) was born in London on 20th November 1859, educated at Brighton College and the Crystal Palace School of Engineering and after graduation was employed among others as Assistant on the Furness Railways, Barrow Docks, and the erection of a drawbridge. From 1883 to 1889 he was in private practice in London on various projects, Architectural and Quantity Surveying including railways.

In 1889 he came to South Africa in the employ of the British South African Company a Sovereign Company established by Cecil Rhodes for the extension of the railway line from Kimberley to Vryburg (Bechuanaland Construction). In 1891 he joined the Cape Government Railways and from 1891 to the end of 1892 was on the construction of the Bloemfontein - Vereeniging link to the South African Republic (Transvaal). In 1893 he was Engineer in Chief on the 32-mile survey for the Kaapmuiden- Barberton line. From 1894 to mid 1895 with the Public Works Department of the Cape Colony he was involved in various surveys and estimates and was Engineer in Charge of the building of the Sundays River Bridge, Combuis reservoir and the water supply for Oudtshoorn.

From mid 1895 to August 1897 as District Engineer for the Cape Government Railways he produced surveys for the Oudtshoorn-Klipplaat, Somerset East - Kingwilliamstown, Graaf Reinet-Rosmead lines and was involved with the construction of 37 miles of railway line. From August 1897 he was on the Port Elizabeth- Avontuur narrow gauge survey (178 miles), and up to April 1899 on the construction of the line. From April 1899 he was on the Amabele –

Umtata railway survey. He was responsible for the construction of 215 miles of these lines.

From August 1900 to June 1901 he was Engineer in Charge of the reconstruction of the Anglo Boer War damaged Fourteen Streams bridge over the Vaal River. In 1901 he was acting Chief Resident Engineer on various contract and departmental railway constructions until appointed in 1904 to the permanent staff of the Cape Government Railways. He was involved with the building of 1007 miles of railway track. With permission he was also Consultant to the De Beers Consolidated Mines Ltd for the construction of the Fourteen Streams - Klerksdorp railway line until March 1907. During this period in 1907 he was appointed Assistant Engineer in Chief on the Cape Government Railways and with Union in 1910 he became the Chief Engineering Advisor (Chief Civil Engineer) on July 2nd 1910 of the newly formed South African Railways and Harbours with a total of 7041 miles (11331km) of government owned railway lines.

In 1919 Mr Tippett acted as General Manager in the absence of Sir William Hoy and retired after 11 years service as Chief Civil Engineer in 1921. He was known for his great ability, resource, initiative and outspokenness. Great demands on the improvements of the permanent way and structures since Union was required and his efforts in this connection remain a landmark in the history of the railways. He published an extensive description of the CGR for the use of the members of the British Association during their visit to South Africa in 1905. Mr Tippett was elected President of the South African Institute of Civil Engineers for 1908. He expressed disappointment that so few papers had been presented during the year. In the education of Engineers he expressed the view that after the theoretical college or university teachings it was essential that an Engineer be indentured to a reputable and competent firm or organisation. He said that complete engineering education was a tedious and expensive process and few could carry it out entirely, further degrees were of value but it must be guarded against that the Engineer does not become more an academic and scholar than a practitioner that will find him employment. He mentioned that there was a proposal to introduce a Bill to Parliament for the legal registration of Engineers. If the wording were not agreed to an attempt would be made to introduce a Private Bill.

Harry Horne Elliott MICE (London) was born in February 1868 and was educated at the South African College Cape Town. His brother George Goodban became Chief Mechanical Engineer on the Railways on the 1st January 1909. Both Harry and George were the sons of Sir Charles Bletterman Elliott who was General Manager of the CGR for a lengthy period. Bletterman Station is named after this General Manager. In 1888 Mr Elliott was appointed Junior Assistant Engineer on the Junction - Indwe surveys and

Rosmead to Indwe. He became Assistant Engineer on the Rosmead-Stormberg and Bloemfontein -Vereeniging construction and the Oudtshoorn surveys. In 1893 he was appointed Maintenance Engineer on the East London, Kimberley and De Aar sections. He was involved on construction and maintenance of railways in the Karoo and Cape Midlands Region and then on the Vryburg -Bulawayo Construction for the British South Africa Company. From 1904 he was Resident Engineer of the Western System including all branch lines up to Vryburg. In 1907 he acted as Assistant Engineer in Chief for 5 months on the CGR. In September 1910 he was appointed Maintenance Engineer for the Union Railways which position he held at his death. During an industrial crisis he was commissioned to take charge of the Waterval Boven Section where he contracted spinal meningitis, which affected his health. He married Ms Rushton of Kingwilliamstown. Mr Elliott was President of the Society of Civil Engineers in 1910. He was also a Member of the Institute of Government Land Surveyors. He was a man of considerable personal charm. He mentioned that his appointment came as a surprise and was as a result of Professor Payne having taken up an appointment to the Chair of Engineering at the Melbourne University the South African College Cape Town being the poorer thereto.

His main address was on the amalgamation of the railways with Union and now with the dual capital legislative in Cape Town and administrative in Pretoria there was a demand for speed involving the railways in a programme of reduction of grade, increased radius of curvature and the steel sleepers to be replaced with timber. There was even discussion on changing the gauge of the railway to 4ft 8 1/2in. However, it was decided to retain the 3ft 6in gauge as the ratio of gauge to width of the vehicles favoured the 3ft 6in (1067mm) gauge. His presidential address also covered the grading of staff, salaries, rates, division of traffic, workshops etc. to be decided as a result of the amalgamation of the railways and that the resources of the railway engineer will be severely taxed. Mr Elliott expressed a concern in his presidential address that there were unqualified and incompetent men practising Civil Engineering and there is no law against the practice. He expressed the hope that the Society would grow from strength to strength with men of integrity and competence and whose opinions would be respected by the Public and Government and would be in their interests to employ as their opinions and advice would stand the test of time. With a recurrence of his health condition he died on the 31st January 1914 in Wynberg Cape Town at the age of 45.

Alfred Dryden Tudhope was born in Port Elizabeth on the 6th August 1863 the son of the Hon John Tudhope the Colonial Secretary to Sir Gordon Sprigg. His schooling was at Grahamstown and Diocesan College (Bishops) Capetown. By his own admission he was not very clever and had to work hard to achieve any success in his studies. He was a humble person and

always encouraged his staff and gave praise where due. He believed in teamwork that included him in the team. In July 1882 he joined the Railways as an apprentice and in 1883 transferred to the survey section. In 1885 he obtained the Certificate to be able to practice as a Land Surveyor. He did numerous surveys and drew many plans for the "New Cape Central Railway" from Worcester to Ashton. In 1887 he went to Barberton and as Resident Engineer built the first railway line in Swaziland for the Pigg's Peak Company. In October 1888 he rejoined the "Cape Central Railways" and as Assistant Engineer did survey and construction work for railways in the Cape Colony and the Orange Free State until 1892. In 1893 he went to England to further his studies and was admitted as a member of the Institute of Civil Engineers (London). From 1894 to 1896 he had his own private practice and was involved in Tembaland under the Glen-Grey Act. In 1896 he was commissioned by? as Resident Engineer to investigate the possibility of a railway line in the Transkei. After he had completed the building of the line from Sir Lowry's Pass to Caledon he continued his employment as Engineer in Charge "Cape Central Railways". On the 8th June 1904 he was appointed Resident Engineer (Midlands System). With Union in 1910 he was appointed Superintendent Maintenance and in 1914 Maintenance Engineer. He elaborated on the three Systems of the South African Railways. **System A** being the Cape including part of the Rhodesian Railways and the New Cape Central Railway Company. **System B** From Port Elizabeth to mid-Vaal River and from East London inland and the Kimberley - Bloemfontein link. **System C** from Durban and the Mozambique Border inland and up to Fourteen Streams. He then went into details of track, signal, platforms and bridges and mentioned that the bridge over the Gamtoos River, designed and erected by members of the Society, had been completed. He had 21-½ years unbroken service. He was married in 1902 to Ada Prior the daughter of Josua Prior and died on the 28th August 1934. In 1912 he was President of the South African Institute of Civil Engineers. He was also President of the Institute of Land Surveyors. In his Presidential Address he mentioned that the Society had given the Land Survey and Irrigation Bill consideration and proposed two slight amendments to secure and safeguard to a great extent the position of the Civil Engineer in the country. He mentioned that the Minister of Railways and Harbours had announced that the Government intended to find suitable practical work extending over three years for those Engineers who had passed the Civil Engineering course at the University and similar Colleges. He suggested that an appeal be made to Government to make funds available to the university for research into timber, metal stone, lime, cement and other materials in South Africa so as to enable Engineers to specify South African natural products. He announced that reinforced concrete had been successfully used in construction in South Africa.

James Mackenzie was born in Blairgowrie Scotland on the 1st September 1862 and served his indentureship in that country. In 1889 he came to South Africa and joined the Cape Government Railways. After the construction of

the Don Petro Jetty in Port Elizabeth he joined the Natal Government Railways and was employed on the building of the railway line from Ladysmith to Harrismith over Van Reenen's Pass. On this construction for the first time the system of reversing stations was used to overcome the steep grade up the Drakensberg escarpment. Mr R.C.Wallace served under him on this railway construction. Joining a contracting firm he was employed by contractors on the construction of the Pretoria -Pietersburg line and from Dundee to de Jagersdrift on the Vryheid line the completion of which was interrupted with the outbreak of the Anglo Boer War. In 1901 due to the war he had to flee to the Cape sacrificing all his possessions and he then rejoined the Cape Government Railways and was employed as temporary District Engineer initially on the survey and construction of the Kalabaskraal-Hopefield and the Amabele- Butterworth lines. Due to his specialised training in Scotland on bridge design and construction he was appointed Bridge Engineer on the Cape Government Railways specifically to survey the old bridges and assess their design for the strengthening thereof to accommodate increased axle loading and heavier locomotives. This post he retained on the establishment of the South African Railways in 1910 with the Union of the Provinces in South Africa. He wrote a paper on his investigations into the earlier constructed bridges in the Cape Colony for which he was awarded the coveted Telford Medal. He designed and constructed among others the Sauer Bridge over the Gouritz River and the Gamtoos River Bridge. He retired in 1922 as Bridge Engineer on the South African Railways but still did consulting work and was involved with the building of the Beit Bridge over the Limpopo River near Musino (Messina). In 1915 he was elected President of the South African Society of Civil Engineers. In his Presidential address he lauded his predecessors for that what they had achieved for the profession and the country and mentioned that 20 members of the Society were on active service with the Union Expeditionary Forces. He would endeavour to forecast what the future had in stall for the Civil Engineer. He saw a great future in agriculture and promoted the development thereof and the provision of bulk storage facilities for grain and the bulk transport for agricultural grain products eliminating bagging for transport. Coupled to this was the need for irrigation works without which the country cannot advance agriculturally He announced that the Attorney General could not proceed with the proposed Bill for Civil Engineers only, it had to include the other Engineering disciplines. He then mentioned that the School of Mines and the South African College had received the recognition of the Institute of Civil Engineers (London) as the introduction of indentureship in South Africa fulfilled their requirements for membership. He died at Woodleigh Banket near Salisbury Southern Rhodesia (Harare Zimbabwe) in January 1941.He was unassuming and ever loyal to those that he served and ready to help and share his knowledge with others.

Mansergh Dias Robinson was the Chief Construction Engineer in the Office of the Engineer in Chief Public Works and was in charge of the building of the Tsono River Bridge and the Indwe-Maclear railway line and the survey of the Darling - Hopefield railway line. He was transferred on promotion to Windhoek, German South West Africa on the 22nd December 1920 as the successor to Mr R.C.Wallace as Director of Railways for the mandated territory of the South West Africa Protectorate. Mr Robinson had 23 years of Government service and superintended the building of more than 2000 miles of railway line. He made great efforts to improve the status of the Engineer and other Professions. He was elected President of the South African Institute of Civil Engineers for 1918 heralding the end of the war. Because an historical sketch of the South African Railways had been published in the South African Yearbook he had to change his theme to the problems of railway construction. Other than in England where contractors undertook railway construction, in South Africa it essentially had to be undertaken departmentally and with sub-contractors. The reason for this can be explained where W.G.Brounger had to take over as Resident Engineer the construction of the Cape Town- Wellington line being built by contractors for the Cape Town Railway and Dock Company due to their incompetence, inexperience and inability to obtain labour. Navvies were imported from England and use was made of the Royal Engineers attached to the garrison. At the time of the change in gauge from 4ft 8 1/2 in to 3ft 6in the prosperity with the discovery of gold and diamonds could not be foreseen. The change in gauge was made purely on sound economic principals and he supported this statement with accompanying figures of the cost of alternative gauges. One of the papers that he presented at the Society was on railway transition curves. On the main line improvements that have to be carried out serves to illustrate the progressive steps a new country may be obliged to take. Mansergh Robinson was elected President of the Society for 1918. In his presidential address he expressed the opinion that it was justifiable for the State to undertake public works even though they may not immediately be economically viable and provide a profit provided it was a means of increasing the prosperity and promoting the development of the State.

Major Angus John Beaton CMG. VD. M Inst CE(London), FSA (Scotland). FGSE.

Member of the South African Society. was the eldest son of John Beaton , Tracksman, Gateside, Ross-shire,N.B. Angus was educated at Munloch Public School, Inverness Royal Academy, and Owens College Manchester. From 1881 he was involved on various harbour, drainage and water projects in Inverness. From 1884 he was mainly involved on railway associated works including as Assistant Resident Engineer on the three mile long Standedge

tunnel Yorkshire, the Severn Viaduct and the sinking of the caissons and cylinders in the river Severn. For his service to the railways in South Africa he received the Order of St Michael and St George and for 30 years military service the V.D. He wrote numerous papers: 1912 "Engineering notes and the problem of the steel rail": 1913 "Staggered vs square rail joints as applied to railway tracks": 1917 "The wear of rails as affected by inclining the rail and coning the wheel". 1920 "Dont"s for platelayers". He also wrote a paper on "Railway construction during the 1914-1918 first world war in German South West Africa". He was Superintendent in the Maintenance Engineering Branch of the Central South African Railways. He was a well-preserved man on his retirement and during his service he was energetic and took a pride in his profession. Major Beaton died in London on the 29th September 1945. He was in South Africa for 22 years and was elected President of the South African Society of Civil Engineers in 1923. In his presidential address he made an appeal to the more affluent members to establish a fund to present a medal to the author of the best paper submitted in each session. In this way it would encourage more papers to be presented and would be the means of distributing knowledge to others in a similar sphere of activity. He said that it was the duty of every Engineer who discovered something new to disclose the discovery to the world. He further mentioned that Engineers should endeavour to participate in the government of Municipalities and Central Government. Large demands were being made on the Civil Engineer for the repair and rehabilitation of the railways due to the deterioration and destruction caused by the Anglo Boer War. The Government was to encourage the immigration of selective persons so as to secure the cream and so ensure that South Africa does not fall behind our sister Dominions. He further added that bearing in mind the high cost of construction and maintaining roads for transport purposes a cheap railway is a sounder commercial proposition. Transport by road to distant and sparsely populated areas could never attain commercial success under existing conditions.

Theodore Heinrich Watermeyer K St John M. Inst C.E. was born at Graaff Reinet in 1879 on the Farm Coloniesplaas. He studied for his Degree in Civil Engineering at the Masons University College Birmingham (later Birmingham University) where, after he had studied further, obtained first class passes in Electrical Engineering. He served in London for two years articled to the Westminster Consulting Engineer Mr David Gravell as a Pupil and was involved in a variety of railway works connected with the London and North Western Railway and the South Eastern and Chatham Railway. He commenced service with the Cape Government Railways on the 26th June 1902 as a Junior Assistant Engineer on the Port Elizabeth - Avontuur narrow gauge railway and due to his exceptional ability was placed in charge of a 30-mile section of line and the construction depot at Kromme River Heights. After experience on other works he was placed in charge of the construction of the

railway line from Oudtshoorn to George, which on completion he took over the construction of the Aliwal North- Zastron line. While on this construction, being innovative, to reduce the heavy labour involved, he designed a track-laying machine with a derrick crane (bokkraan) mounted on a truck as well as other implements, rail tongs etc. In 1917 he was appointed Assistant Superintendent (Maintenance) Pietermaritzburg. In December 1920 he was appointed Assistant to the Chief Civil Engineer. Five years later he was first appointed Assistant General Manager Bloemfontein and subsequently Cape Town. In 1922 he represented the South African Railways at the International Railway Conference in Rome. In April 1929 he was elevated to the position of Assistant General Manager (Technical) at Headquarters then called to act as General Manager to which post he was appointed on August 14th 1933. Mr Watermeyer reached the retiring age in 1939 but due to the Second World War was retained in the service and retired in February 1941. He died on the 3rd December 1948 in Johannesburg. He was a Knight in the Order of St John and held the position of Hospitaller and Almoner, which associated him with the Order's Ophthalmic Hospital in Jerusalem. He was President of the South African Institute of Civil Engineers in 1926. His Presidential Address was mainly on Engineering education in the country and the prospects for Civil Engineers in the country.. He expressed concern that there were so few "Dutch" South Africans at the head of the profession. Now that the system of pupilage and training was introduced in South Africa he was of the opinion that South African Engineers were getting wider, in employment, experience than those in England where the Consultant Engineer designs and the contractor executes the work whereas the majority of engineering work in South Africa is carried out by State Departments. The Engineers job is to do for a dollar what any fool can do for three or four dollars. The engineer was not entirely involved with dry mathematics and formulae but a good deal of his time is taken up with Homo sapiens with all his faults, weaknesses and vagaries. He proposed that young engineers should be sent overseas to study any special problems encountered. He then touched on permanent way developments.

Robert Calderwood Wallace was born in the West Indies of Irish parentage and took up an engineering appointment with the Natal Government Railways in 1889. He was posted to the Northernmost terminal of the railways at Ladysmith but was shortly afterwards transferred to Newcastle on construction and was present at the opening of the line up to Charlestown in 1891. He was then involved with the extension of the railway line from Natal into the Orange Free State stationed at van Reenen's Pass. In 1892 he was detailed by the Chief Engineer of the Natal Government Railway Mr William Carr to execute the survey of the railway from Charlestown into the Transvaal, which was being undertaken by the Natal Government Railways on behalf of the Transvaal Republic to meet the NZASM line outside

Heidelberg. On completion of the survey he was employed by NZASM at Barberton. (In those days Engineers moved freely from one organisation to the other). He returned to the Natal Government Railways for the construction of the line from Charlestown to Heidelberg and was present at the opening in 1896. He then accepted an appointment on the Mashonaland and Beira Railways at Umtali. He returned to the NGR and later worked for the Orange Free State Railways. He was involved on numerous surveys in Natal, Orange Free State and the Transvaal, His first appointment as District Engineer was at Piketberg on construction and then transferred to Waterval Boven in 1901. When the OFS and Transvaal Railways were taken over during the Anglo Boer War by the Imperial Military Railways he was employed for 4 years in the same capacity at Waterval Boven. He was transferred to Pretoria and held various posts until appointed Divisional Superintendent in 1913 which post he held until 1918 when he was appointed Director of Railways in the territory German South West Africa which after the Second World War became mandated to South Africa. After two years he was appointed Chief Civil Engineer on the South African Railways being the second Civil Engineer to hold the post, which he held for seven and a half years. Mr Wallace was a Member of the Institute of Civil Engineers (London) and was a member of the Institute of Transport.. He retired from the South African Railways in 1928 and settled in Sunny Cove, Fish Hoek and served for nine years on the Fish Hoek Village Management Board. After his retirement from the railways he was elected President of the South African Institute of Civil Engineers for 1929. His Presidential Address was on the earlier methods used by the Engineers on the survey and location of the various routes for the proposed railway lines. One had to have an eye for the country and with the use of only an Abney level and staff etc and by horseback reconnoitre the country. The farmers of the area were also of immeasurable assistance not only for their knowledge of the topography but also for their knowledge of the flow and strength of the streams and the flood levels.

George Hiam Whitehouse MICE. MC was born in Wresham, County Denbigh, and Wales on the 1st February 1874 and went to the Grove Park School then studied privately for his engineering qualification and was articled to the London engineer A.E. Johnson from 1896 to 1899. He was admitted to the Institute of Civil Engineers (London) as an Associate in 1907 and became a Member in 1918. He came to South Africa as a volunteer attached to the South Staffordshire Regiment of the Royal Engineers in 1900. During the Anglo Boer War he was appointed by Sir Percy Girard as Staff Lieutenant in Pretoria on the Imperial Military Railways. In 1901 he was Assistant Engineer on the construction of the Klerksdorp- Johannesburg line and subsequently on the Harrismith- Bethlehem, Modderpoort- Bloemfontein, and Bloemfontein- Kimberley lines and in 1911 appointed Resident Engineer on the Ermelo - Piet Retief line and thereafter on the Bethal-Volksrust line when he was drafted as a Military Engineer during the Great War (First World

War 1914-1918) to push the railway line forward from Upington to link up with the line in German South West Africa at Kalkfontein (Grunau). For this effort he was decorated with the Military Cross. On his return he completed the Volksrust - Bethal line and after important surveys in the Transvaal and Orange Free State was Resident Engineer in 1922 on the Lydenburg-Olifantspoortjie (Steelpoort) construction. From 1923 he was Maintenance Engineer in Bloemfontein and Durban. In 1927 he was appointed Assistant General Manager Durban and with the reorganisation of the railways in the same post as System Manager. Mr Whitehouse was appointed Chief Civil Engineer in 1930 and simultaneously held the post of Assistant General Manager (Technical) until retirement in 1934. He was married to Aletta Erasmus of Hopetown in Ermelo in 1911 and they had one son Georg. He retired to his farm in the Northern Transvaal where he died on the 9th May 1950. Mr Whitehouse was elected President of the South African Institute of Civil Engineers in 1936. His Presidential Address was in the Silver Jubilee year of the reign of King George V and of the Union of South Africa. It was the attention of the Engineer that should be entirely confined to adding his contribution to the peaceful development of the country and making use of the resources, which it is the particular duty of the Civil Engineer to undertake. Civil Engineering is a young profession adding to its achievements annually. The Civil Engineer's work in life is positive and brings happiness and adds convenience to the community amongst whom he lives. The address was further on the development of the Railways and Harbours and the need in the country for the storage of water and flood control. Mention was made that the National Roads Board that had that year been constituted.

William Moyers BA, BA (Hon) MICE (London) was born in Dublin Ireland in 1878 and received his technical training at the Trinity College Dublin where he graduated in 1902 with the Degree BA. BAI(Hon). He was then employed on various railway and dock constructions in Ireland before going to England on the construction of the Nott-end railway. In 1910 he came to South Africa to work for the Pauling Brothers on the building of the Selati line and in 1911 joined the South African Railways. His early service was spent on construction and was Resident Engineer on the first electrification of a railway line in South Africa between Pietermaritzburg and Glencoe and the regrading and deviation of the railway line from Claremont to Nottinghill Road, which included the Shongweni tunnels. In 1925 he was transferred to Johannesburg as Inspecting Engineer before being appointed Chief Civil Engineer in 1934. On his retirement in 1939 he was Assistant General Manager (Technical) and retired to his home in Westcliff Johannesburg. Besides his keen and active interest in the development and expansion of the railways and harbours he devoted much of his time in the development and practice to improving the standard of track maintenance. In the First World War (Great World War) from 1915 to 1919 he served with the Royal Engineers in France and was

mentioned in despatches. He held the rank of Major. In the Second World War (1939-1945) he was for five years Technical Advisor to the Authorities Committee of the Union Defence Force and dealt with all the technical aspects of the military works carried out in the Union of South Africa. From 1946 to 1956 he was Director of the English Electric Company of South Africa. Throughout his life and particularly after retirement he gave his time and energy in voluntary services in particular the Governor Generals Fund for the demobilised war servicemen and their dependants and the St John Ambulance Association. Mr Moyers was a very active member of the South African Institute of Civil Engineers and was a Council Member for many years and had the distinction of being the only President after retirement from the railways to serve two successive years, due to the Second World War (1939-1945), as such. He was also a member of the Institute of Civil Engineers (London) and represented that Society in South Africa for 7 years. In his address he was pleased to mention that a branch of the South African Society of Civil Engineers had been established in the Transvaal. He went on further to state that there was no protection for the properly qualified Engineer in South Africa whose efforts influence the everyday life of everybody and had played and is playing a large part in the development of the country. The engineer's work and design is to serve the purpose for which it was provided for as long as can be foreseen. The Engineer leaves unsung monuments to himself that continue to serve man for whom they were provided long after he has gone.

J.S.DeV.) von Willich was born in Paarl and his schooling was at various schools. Later he went to the South African College School (SACS) now Cape Town University. He joined the Cape Government Railways in 1901 first as an Assistant Draughtsman and promoted to Draughtsman in 1906. He served in these capacities on the Mossel Bay- George - Oudtshoorn survey. He then entered University once again and read for the Degree Civil Engineering obtaining his BSc in 1911 and rejoined the now South African Railways after Union. He was now employed as an Assistant Engineer on the George-Oudtshoorn line and then respectively in Johannesburg and Pietermaritzburg.. His next promotion in 1918 was as Assistant Chief Draughtsman in the Office of the Chief Civil Engineer at the headquarters in Johannesburg and later became Chief Draughtsman in 1928. Mr von Willich was then transferred to London as Advisory Engineer to the High Commissioner. On his return to South Africa he was appointed System Engineer in East London, Cape Town and Johannesburg respectively. He then was promoted to System Manager Kimberley in 1934 and in the same grade subsequently in Durban and Cape Town. His further promotions were to Assistant Chief Civil Engineer then Chief Civil Engineer from which position he retired in 1948. He is the author of various papers on the development of rails and gauge published in the transactions of the above

institute and on track maintenance. His son J.P.R.von Willich was elected President of the South African Institute of Civil Engineers in 1983. He was elected President of the South African Institute of Civil Engineers in 1942. The main body of his address was on the development of transport from Babylonian times and covered the development of gauge, sleepers and rails over the centuries. Mention was made that the first flanged wheel for the permanent way was developed in Germany. Railways are designed for public transportation.

William Marshall-Clark OBE was born in London in 1900 and came to South Africa with his parents at the age of two. His father was an engineer in the employ of the Central South African Railways and retired from the South African Railways as Bridge Engineer in 1925. Nobbie Clark the name by which he was generally known was educated at the King Edward V11 School in Johannesburg and obtained his BSc degree in Civil Engineering at the University of Cape Town. On graduation in 1921 he joined the service of the South African Railways as a Pupil Engineer and was promoted to Assistant Engineer and District Engineer on various railway construction sites in all the Provinces of the Union of South Africa. In 1934 he was appointed Resident Engineer Rand New Works Germiston with the responsibility of the doubling and deviating of the Germiston- Pretoria railway line and the lowering of Mayfair and Jeppe Stations the forerunner of the lowering of Johannesburg station. With the outbreak of the Second World War in 1939 he was entrusted with the task of forming and equipping the Railway and Harbours Division of the South African Engineering Corps and was given command with the rank of Lieutenant Colonel in which command he served in Egypt, Palestine and Syria. One of the major proposed works, described as widely impractical, undertaken under his command was the building of the railway line, under most difficult circumstances, to be known as an epic of railway construction, was from Haifa to Beirut. This line was of incalculable importance strategically towards the eventual outcome of the war. For this effort he was decorated with the OBE (Military Division). He was recalled to South Africa stationed in Cape Town in 1943 as Controller of Ship Repairs. This new field-tested his enterprise and ingenuity where up to then only coasters had been repaired in South African harbours. The Mediterranean harbours not being functional and the British harbours being bombed it rested with the South African harbours to effect urgent and necessary repairs. From February 1941 to the end of 1944 7568 disabled merchant ships and 2649 warships were repaired and the greatest success was the conversion of the SS Cormoran to an armed merchant cruiser. Two new graving docks were built the Sturrock dock in Cape Town and the Queen Elizabeth in Port Elizabeth. In 1945 he was appointed General Manager of the South African Railways at the age of 45 but due to the change in government and the outcome of the Grievances Commission, established to investigate the

grievances of railway employees who felt that they had been disadvantaged and maligned because of their political affiliations during the war, he was retired from the service in 1950 at the age of 49. The railways as a result lost a loyal railway engineer and South African. The loss to the railways was to the gain of Anglo American where he was Executive Director. He belonged to that band of railwaymen where positive achievements form an indelible part not only of railways but South Africa in the whole. He was married to Stephanie van der Poel. On his acceptance of his retirement, at his farewell, the character of the man came to the fore when he said with a sad heart "I believe that a Government servant must carry out the wishes of the government that he serves. If he declines to do so he places himself and those under him in an unworthy and untenable position" His retirement was a sad day for the Minister of Transport Paul Sauer who had to bid him farewell with the golden handshake as the families were personal friends and the wedding reception after the wedding of Nobbie to Stephanie was on the Sauer family farm. Two daughters were born out of the wedding. William Marshall Clark was elected President of the South African Institute of Civil Engineers for 1948. The theme of his address stretched from the 15th century search for a sea route to India and colonisation to the present day where transport in a modern civilisation is becoming more and more important and air transport also entering the transport scene. He did not think that there was any other country in the world that owed its development to overland transport as did South Africa because what had affected the transport system was the most important geographical feature there being no navigable rivers and the mineral wealth being deep inland. After giving a short history of transport in South Africa he then predicted severe road congestion in Johannesburg and consideration being given to an underground commuter system to serve Alexandra and other areas. He mentioned that transportation was of vital interest to the world and was becoming more and more complex in a modern society. He died on the 26th February 1966.

Alfonso Frederik Bruins-Haylett (Boetie) was educated at the Estow School, Bedford, England and **joined** the service of the South African Railways on the 17th February 1914. Mr Bruyns- Haylett saw service in the First World War (Great War) was captured and held as a prisoner of war. Mr Bruyns-Haylett also held a Degree in Land Survey and did the survey for the Cape Eastern Main Line Improvements that commenced in 1937. He was as Research Engineer the pioneer of the 1920 foot long rail (LWR) with the specially manufactured sliding spliced switch joint. This was also the first time that rails welded to this length at the welding depot were transported to site on specially modified trucks with sliding cradles. He is known for his papers published in the Transactions of the South African Institute of Civil Engineers on the Economic Location of Railway Lines. This paper introduced the theory of momentum grades. He also introduced a paper on The Compensation of the Grade for the Curvature in the Track to compensate for the additional

friction involved. He also wrote a further paper particular to steam locomotives on Momentum Grades. He was the delegate representing the Associated Scientific and Technical Societies on the Road Safety Organisation as Technical Advisor at the Southern African Transport Conference. He was Chairman of the Railway Museum. His railway service stretched over 37 years. He was elected President of the South African Institute of Civil Engineers for 1950. He introduced his theme with the announcement of a further milestone in that on the 1st December 1949 the Headquarters of the Institute had moved from Cape Town to Kelvin House in Johannesburg with the secretariat of the South African Associated Scientific and Technical Societies. He mentioned briefly the history of the Institute. 1902 Cape Society of Civil Engineers formed and the inaugural meeting in 1903. In 1909 with the Union of the provinces renamed the South African Society of Civil Engineers and finally in 1947 became the South African Institute of Civil Engineers. **His main** theme was the development of aerial photography and its use in the location of railways and the economics of railway location. He further reported on the development of the South African Research Section of the South African Railways and the areas of research. The sign of a true Engineer was to provide accurate estimates and to build at minimum cost without compromising safety, soundness and function of the project.

Pieter Johannes Louw was born on the farm Babylonstoon in the Paarl District on the 28th January 1894 and matriculated at the Caledon High School while living at Onrus Rivier. On obtaining a loan he entered Victoria College (Stellenbosch University) where he obtained the Degree BA Physics and BA(Hons)Physics. As he was not successful in his application for further study overseas he entered the South African College School (SACS now Cape Town University) and graduated with the BSc degree in Civil Engineering in 1916 obtaining the South African College Cape Town Corporation Gold Medal for Engineering. Due to the First World War and work not easily obtained he worked for a while on his brothers farm before obtaining employment on the South African Railways and was posted to the Natal Construction as Pupil Engineer for five years on the main line improvements Cato Ridge- Clairwood and the Nottingham Road- Ladysmith surveys. He was then Transferred to Lydenburg for the extension of the line Lydenburg -Olifansspoortjie(Steelpoort) camping on the farm Aapiesdoorongdraai. The multi- arch bridge on a curve over the Spekboom River near Podloodspruit next to the masonry roadbridge on the Jock of the Bushveld Trail built by Bryden and Giletti was part of this construction. He was then transferred to Cape Town as Assistant Superintendent Maintenance. In 1927 he was appointed District Engineer Mafeking(Mafikeng) the district being from Vryburg to the facing points of Bulawayo. Subsequently he was transferred in the same grade to Ladysmith, Cape Town, Durban and subsequently Assistant System Engineer East London and System Engineer Johannesburg. After military training at Roberts Heights

now Voortrekkerhoogte he was to have been sent overseas on active service with the South African Engineering Corps Railway and Harbour Division. However, instead, in 1941 he was transferred to Windhoek as combined System Engineer and System Manager without promotion all promotions having been frozen due to the Second World War. This appointment was specifically to ease the tension in South West Africa as a certain railway official was stirring up trouble within the ranks of the railways, the public and the German community during the very volatile period. One of the Senior Officers, to relieve the tension, had to be discharged. As a result of this dismissal he was charged for irregular dismissal and the allegations were heard by the Grievances Commission established with the change in Government after the end of the war to hear and rectify should any irregular dismissals have had been perpetrated. The next promotions were to System Manager Bloemfontein, followed by Inspecting Engineer, Assistant Chief Civil Engineer, and in 1948 Chief Civil Engineer Johannesburg then in 1950 Assistant General Manager (Technical) in which post he retired in January 1954. He was elected President of the South African Institute of Civil Engineers for 1953. In his Presidential Address he mentioned that it was the 50th Anniversary of the formation of the Society and the development of the constitution. He thanked the Secretariat of the Association of Scientific and Technical Society for their services. As an example of the development of the railways he quoted that it was the American opinion in 1860 that the maximum tractive effort of 28374 lbs of the steam locomotive had been reached as well as the axle loading and he illustrated that developments in railways had so progressed that the axle loading and the tractive effort now with the GL Garret locomotive has surpassed all predictions with a tractive effort of 78650 lbs. In his address he gave details of the new design of workshops and the swing from steel bridges to reinforced concrete bridges and composite beams and slabs. Further the reason for the railways involvement in the construction of airports was due to the frenzy of war and the development of aircraft and air transport. He reported that the railway engineers had played an important part in the advancement of the Institute. He died in Johannesburg on the 22nd December 1972.

Henry Robert Moffatt was born in Port Nolloth and was educated at Truro College, Cornwall and had workshop experience before attending Leeds University in 1914 where he graduated with first class honours, after his studies were interrupted by the First World War, with the Degree BSc Civil Engineering in 1920. During the interruption to his studies he saw service in France with the Royal Flying Corps. After graduation he elected to return to South Africa and was employed by the South African Railways and Harbours commencing December 1920 as a Pupil Engineer on Cape Town harbour maintenance and construction for eleven years. In 1931 he was transferred to Port Elizabeth for the construction of the new harbour and protective works together with a marshalling yard which work was completed in 1938. He was

then transferred to Durban as Harbour Engineer (New Works) and later as Harbour Engineer. After the cessation of hostilities 1939-1945 and on the appointment of William Marshall Clark as General Manager he took over the vacated post as Chief Technical Officer (Reconstruction) in 1945. Following reorganisation within the Service he was appointed Construction Engineer and subsequently Assistant Chief Civil Engineer (Construction) and in 1953 Chief Civil Engineer from which post he retired in 1956. During his term of office as Chief Civil Engineer he successfully chaired the committee that investigated the introduction of diesel traction and the successful integration of these locomotives into the steam and electric locomotive pattern. After retirement he was Technical Consultant to the Administration and was chairman of the Moffatt Commission that investigated the method of acquiring and the disposal of assets and stores procedures where the stores Department took control of the acquisition of all materials for all the Railway Departments and published the Moffatt Report regularising the acquisition, sale and disposal of railway material and assets. Mr Moffatt was elected President of the Institute for 1956. The theme of his address was that it was not generally recognised that the economy will suffer and might collapse if engineers and scientists are not available. He said that the professional engineer must be in true standing as an individual member of his profession or community. He reiterated what the president for 1952 said in that scanty representation of the professional engineer in Administration or Government was neither good for the country or the profession. The engineer must be a leader of men an organiser, planner and administrator. Engineers are spenders of large amounts of money that must be spent wisely in raising and maintaining the present standard of living. The engineer carries a large responsibility in the life of the country and future generations. The balance of his address was on the history of harbours and harbour construction. During the period 1965-1968 he served in a consulting capacity in the South African Navy for the Simonstown Harbour Redevelopment. Mr Moffatt also served on an independent investigating committee into the future development of Table Bay Harbour. He was meticulous in all his investigations, thorough in his findings and decisions and was devoted to his duty.

Jeremia E B Jennings was employed on the South African Railways and at the time of his resignation, to take up an Academic appointment at the University of the Witwatersrand, was involved with the North Coast Railway Improvements in Natal as District Engineer. He was involved with the building of the reinforced concrete tied arch bridge over the Umshlatusi River. This was the first railway bridge of this type to be built in South Africa. Before construction a reinforced concrete model of the bridge was built for testing and experimental purposes at the University of the Witwatersrand and after testing was complete it was transported to the Railway College Kaalfontein .

He was elected President of the South African Institute of Civil Engineers in 1958. The year of the Convention the theme being "A look into the future." And the role of the civil engineer in the continued development of the subcontinent. And its challenges in the technical development in which the civil engineer will have a most important part to play. The title of his address was Soil Mechanics. He advocated the study of soil mechanics as being a worthwhile and exciting field of study the theoretical basis of which was simpler than that of strain-energy. In his paper he refers to papers and theories on soil mechanics written by various authorities on the subject. He stated that basically civil engineering undertakings deal with the control and use of three groups of materials that can be controlled by specifications and tests. 1: steel and concrete (theory of structures and strength of materials) 2: Water and the science thereof (hydraulics). 3 Rocks and soils of the earth's crust on which every single civil engineering structure rests (soil mechanics) e.g. collapsing sands and expansive clays).

Frederick (Mick) Jackson was born in Scotland of a railway family in 1905 and came to South Africa with his parents. After finishing his schooling in South Africa he attended the Edinburgh University where he graduated as a Civil Engineer. In 1927 he returned to South Africa and was employed as a Pupil Engineer at Louis Trichardt and thereafter mainly on construction and the improvements on the Witwatersrand. During this time he studied further and obtained the Degree of MSc (Civil) from the University of the Witwatersrand. In 1938 he was appointed to the post of District Engineer in Johannesburg. With the outbreak of the Second World War he joined the South African Engineering Corps (Railway and Harbour Division) and was involved in Palestine (Israel) with the building of the railway line from Haifa to Beirut. He was then in the Western desert constructing the railway line from El Adem to Tobruk harbour. Then he was sent to the Turkish border with Northern Syria with the rank of Major O.C. of the 38th Railway Construction Company of the South African Engineering Corps. Here he was involved with the construction of the railway line in Syria. Later, on to Italy in 1943 with his company, where they were actively engaged in tunnel and bridge construction and repair. For his military service serving his country with distinction he was awarded the MBE. Recalled from war service he was sent overseas and to America on a study tour to examine and report on the design of large Metropolitan railway stations and gravity marshalling yards. On his return he was appointed Resident Engineer (New Works) on the design and construction of the new Johannesburg railway station and the new Kazerne good sheds and marshalling yard and other projects on the Witwatersrand. In 1953 he was promoted to management as System Manager Kimberley and Pretoria respectively and in 1956 to the post of Assistant Chief Civil Engineer. At the end of 1962 he took up the post as head of the Planning and Productivity Division involved with the first petrol pipeline from Durban to

Sasolburg, and the initial groundwork for the proposed new Richards Bay Harbour.

Mr Jackson also envisaged, with the building of the Crown Westgate line, the extension thereof to link up with Booyens- Faraday line and extended cut and cover under Eloff Street to underneath Johannesburg station, under the fort, exiting at the Wilds and further extended to accommodate Alexandra and then with a sweep to the West and South to eventually with a tunnel under Millpark and Braamfontein to link up at the existing Crown station.

In 1965 he was retained as Technical Consultant on the design of the new Durban Station and other Durban projects. Fred Jackson was first and foremost a railwayman with clear vision and determination and a pleasant and co-operative personality. He retired from railway service on the 7th June 1965. Fred took an active interest in the affairs of the South African Institute of Civil Engineers and was elected President for 1964 and was involved with the negotiations that led to the Registration of Professional Engineers. The theme of his presidential address was on urban passenger transport and Johannesburg's problems. He pointed out that a greater number of people enter the city from the East and West but that the roads are less congested than the roads from the North with a smaller number of people entering the city even with the provision of more bridges over the railway line. He mentioned that in 1946 an investigating committee comprised of Municipal and Railway officials on analysing the rapid transport system of various countries found it feasible and relatively inexpensive to provide Johannesburg with an underground system as being the most efficient and advantageous yet admittedly the most expensive. It was essential at this stage to plan the routes and acquire the land. He stated that the engineer must by his integrity, conscientiousness; zeal and dedication to his employer and the task in hand prove himself to be a worthy member of an honourable profession. In his retirement years he was severely afflicted with a stroke. He died in Johannesburg.

Archibald Mervyn Steel OBE, BSc, MICE. Was born in Pietermaritzburg and educated at Maritzburg College and the Natal University College(Howard College) where he graduated with the Degree BSc Engineering (Civil) in 1925. He joined the South African Railways on the Klerksdorp -Maquassie construction on the 11th December 1925 and except for a short spell on Transportation was on various construction works as Assistant, District and Resident Engineer respectively until August 1947 when he was appointed Inspecting Engineer (Construction). Further appointments were Chief Planning Engineer in the General Manager's Office(April 1955), September 1960 Assistant Chief Civil Engineer, and January 1963 Chief Civil Engineer from which post he retired on the 4th January 1967. Construction was his main interest and for contract work he favoured the approach of a thorough schedule of measured quantities and agreed prices as could reasonably be

achieved. He was mainly responsible for the introduction of Technical Aids for Engineers with the introduction of the post of Engineering Assistant on the South African Railways on an organised basis of education, training and employment with clear avenues of advancement in the service.

His service in South Africa was interrupted in 1940 when for nearly four years during the Second World War while he was on active service with the South African Engineering Corps (Railway Division) in East Africa, Middle East, North Africa and Italy. Of the achievements in this sphere in East Africa his company assembled and launched the first bridge across the Juba river at Lonte. With the rank of Major he was transferred to Palestine (Israel) and was involved with the building of the railway line from Haifa to Beirut a distance of 130 km in eight months. Then in the Western desert just in time for the retreat to El Alamein. As fast as the eight army made its final advance his detachment the 40th railway construction company of the South African Engineering Corps restored the railway and with progressive railheads supplied 8000 tons of war supplies daily up to El Adem (Tobruk). He was awarded the MBE for his efforts at Juba and OBE for his services in the Western Desert. As a Council member for two years he represented South Africa on the Institute of Civil Engineers (London).

He was a member of the Council of the South African Institute of Civil Engineers for twelve years and elected President in 1966. In his presidential address he mentioned that he was the ninth Chief Civil Engineer of the South African Railways to be elected President of the Institute. The Institute was becoming more and more involved in the quality and quantity of the Engineers entering the ranks and their further guidance, education and training. He mentioned that the greater majority of people even some in close touch with Civil Engineering are confused with the true nature of the work and picture it as an occupation perusing manholes with no more than a crowbar. They do not understand the science and scope of the Civil Engineer's work. Civil Engineering is the practice by which man started organising human society. Civil Engineering embraces water, water conservation, highways, structures streets storm water etc. He then elaborated on new developments on the railways and harbours. He stated that civil engineering is basically and essentially the co-ordination of skills and efforts that come from outside of its own ranks and is also an applied science in which basic facts are all important. Mervyn took a keen interest in sport and was a golfer and member of the Royal and Ancient St Andrews golf club in Scotland. He was married to Eileen. No children were born out of the marriage. Mervyn died in Johannesburg in April 1988.

Dirk de Vos was employed on the South African Railways and while District Engineer Waterval Boven resigned to take up an academic appointment at the University of Pretoria. He was elected President of the South African Institute of Civil Engineers for 1969. In his presidential address he mentioned

that with the Act No 81 of 1968 arising out of which was the formation of the South African Council of Professional Engineers and the Professional Engineers Joint Council challenges were presented to the Institute, Council and Branch Committees, Divisions, individual members and Educators. He mentioned that career guidance educators at the schools should be well advised and well informed concerning engineering. Civil engineers must come out of their back rooms and ensure that their works and achievements are widely publicised.

Hendrik Adriaan Loots was born in the District of Graaf Reinet where he started his schooling and then completed his schooling in Bloemhof. In 1940 he graduated with the Degree of BSc Civil Engineering at the University of Cape Town. After graduation he accepted a position as Junior Lecturer while reading for a Ph D. Professor Snape advised him before pursuing his academic career further he should first obtain practical experience. Hennie then decided that on the South African Railways he would gain the most experience in the shortest time. In 1945 he was appointed Assistant Engineer on Rand New Works Germiston among others involved with the building of the Railway College at Kaalfontein in 1946 after which he was posted to Vereeniging on the doubling of the Union -Vereeniging line and the building of the new Vereeniging Station and the staking out of the Vereeniging goods avoiding line together with the marshalling yard at Leeuhof and the location of the line over the Vaal River for the proposed new bridge. In 1950 he was transferred to Cape Town and was appointed District Engineer (Maintenance) in 1956 and a year later was transferred to Cape Town Construction and was involved with various projects on the Cape Flats. In 1959 as District Engineer in the office of the Chief Civil Engineer he was in charge of all the ballast quarries that had been established country -wide. After this promotions came fairly regularly and in 1962 as Engineer (track mechanisation) he was instrumental in planning the introduction of track mechanisation country -wide introducing lorries and mechanised track tools throughout the railways so eliminating the push trolley and flying gang trolley track maintenance teams together with the heavy on track ballast tamping machines. The introduction of on track machines required revision of the train operating regulations. Together with the Trains Operating Department in the General Manager's Office the regulations were amended to accommodate on track maintenance machines. In 1966 he was appointed System Engineer Pretoria, in 1968 Assistant System Manager Johannesburg, 1969 System Manager East London and in 1970 System Manager Pretoria. From 1973 he held various posts in the office of the General Manager including Operating and retired in 1983 as Deputy General Manager (transport media). He took an active interest in the community particularly technical education and was a member of the Suid Afrikaanse Akademie van Wetenskap en Kuns. In 1984 he was elected President of the South African Institute of Civil Engineers. The theme of his address was plan, prepare or perish. The civil engineer must make a

contribution to reduce the effect of inflation by using his skills and expertise, innovation, initiative and training by working smarter. You cannot help men permanently by doing for them what they should be doing for themselves.

Bettie sy vrou was betrokke by die Nasionale Party en sy seun is 'n predikant in die Nederduits Gereformeerde Kerk

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