

RESUME F.E.Archer.

Frederick Ernest Archer B.Sc., B.E., MIEA. born Lismore N.S.W. 1913
Educated Sydney Technical High school, Dux 1930. then at Sydney
University, graduated B.Sc 1934, B.E. (Civil), (Hon.) 1936.

Had four brothers and one sister, all but one brother now
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My father R.W.Archer received his education from private
tutors while living on his father's sheep station. He spent his
working life selling Life Assurance and in a managerial position
in a leading Life Assurance Company.

My mother, whose grandfather was a migrant from Döffingen,
near Stuttgart Germany had only a Primary School education.

I married Margaret Smith in 1937 and have three children. The
eldest daughter is a graduate of Sydney University, B.A. and Dip. Ed
and my son after being employed as a Health Surveyor in Local
Government completed the Barristers Admission Course and was
called to the Bar.

I have 13 grandchildren and 14 great-grandchildren. 3 of my
grandchildren have B.A. degree and one graduated B.E. (Civil) from
Sydney University.

Before finishing the B.E. course I worked with the Main Roads
on the Pacific Highway. It was during the Great Depression and
very basic methods of construction were employed.

After graduation I was employed as Engineering Draughtsman in
the Design Office of M.W.S.D.B. I spent one year in the Design
branch and designed

- (a) Sewer aquaduct on the N.S.O.O.S. in Parramatta.
- (b) Large stormwater drain in Blackwattle Bay.
- (c) Sewer aquaduct on Lane Cove submain.
- (d) Portions of the Hornsby Sewage Treatment works.

In March of 1937 I was appointed Asst. Supervising Engineer C
grade in M.W.S.D.B. and was engaged on the construction of S.W.S.O
O.S. In the Botany area. This main sewer was a large twin-celled
reinforced concrete conduit, rectangular in cross section founded
on reinforced concrete piles in a very deep sand excavation. My
duties included minor survey work, design of special formwork and
some special plant required in the construction and general
supervision. I resigned from the Board at the end of 1937.

In January of 1938 I joined the staff of the City Building
Surveyors Dept. of the Council of the City of Sydney as an Assist.
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For the first few years involved in checking of plans and calculations submitted by Structural engineers for buildings being erected within the City of Sydney. Involved the checking of all types of building structures.

Took part in the training of building inspectors in checking field welding and in this connection attended with the inspectors a practical course in arc welding at C.I.G.

Helped on building sites in an education programme to promote more accurate batching of concrete.

The city was divided into four districts for the work of the department and a senior structural engineer dealt with all building applications and later all Interim Development Applications within each district. I was promoted to one of these position in 1941. Duties included checking all architectural plans and specifications against the building regulations, supervising engineers who were checking the structural plans, supervising the building inspectors.

I assisted in the formulation Bye-laws which became the building regulations applicable in the city.

At times I represented the City Building Surveyor on committee of the Standards Association of Australia revising the applicable structural codes.

Within my district supervised a survey of existing buildings with respect to their means of egress in the event of fire, and a similar survey to check on actual floor loadings in relation to their design loading.

One came to know all the prominent architects consulting structural engineers submitting plans in the city. As a result several engineers asked me to do structural designs for them in my free time at home and over a number of years I did designs for Ledger and Crooks-later Crooks and Michell Woolacott and Hale-later Hale Bond and Corlett R.E. McMillan-later McMillan and Britton.

what were they? In 1952 and for a few years after in collaboration with H. Bye I completed the design and plans for several reinforced concrete structures in the suburbs of Sydney.

where did he learn German? In the 1940's there was little if any information available re the design of reinforced concrete beams subjected to torsion. A German book became available entitled "Design of Reinforced Concrete to Resist Torsion and Shearing" by E. Rausch. I translated this work from the German and made it available in the Dept.

At the beginning of 1953 I was appointed lecturer in Civil Engineering at the then University of Technology which became in 1958 the University of N.S.W. I remained with the university until the end of 1970 having been promoted first to the rank of Senior Lecturer and then Associate Professor. After 1970 I continued to lecture part-time for a further five years.

During my 22 years at U.N.S.W. I taught at some time most subjects in the Engineering course related to structural analysis and design, ranging from Engineering Mechanics, Mechanics of Solids Design in Timber, Steel, Reinforced Concrete, Prestressed Concrete, Elastic and Plastic Analysis of Structures.

I was joint author with A.S. Hall of the textbook Engineering Statics.

I supervised the work of many M.Eng.Sc. as well as several Ph.D. candidates.

I carried out research work into Strength of Fillet Welds, Elastic Analysis of Deep Beams, Analysis of Structures of Non-linear Elastic Material, and published papers in relation to this work, as well as joint papers on Behaviour of R.C. beams in Torsion Bending and Shear.

A great deal of my time was taken up with administrative chores in the Civil Dept., particularly in relation to student progression in courses and admission of students from other institutions both local and overseas.

For a number of years I worked on the committee of the Institution dealing with the Accreditation of Engineering Courses in various universities and colleges. and reported on the qualifications of engineers from overseas re admission to the Institution

From the year 1960 until 1980 I gave my invalid wife support in caring for a total of 48 foster children for the Catholic agency Centacare and the N.S.W. Dept of Youth and Community Affairs.

After retirement I took up as a hobby, drawing and painting and have continued an interest in art.

I* have also taken a keen interest in Astronomy and in 1945 ground and polished a six inch mirror and made a reflecting telescope.

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