



SIR CYRIL REGINALD  
SUTTON  
KIRKPATRICK

1872 - 1957



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Sir Cyril Kirkpatrick 1872 - 1957

President of The Institution of Civil Engineers.  
1931 - 1932

Chairman of The Association of Consulting  
Engineers.  
1935 - 1936

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distinction available for an ancient monument in Great Britain. The Secretary of State considers it to be of national importance according to a set of published criteria. In fact there are only 300 scheduled ancient monuments of industrial character within the schedule, and this is a mark of the significance of the monument in national terms."

#### **Redheugh Bridge**

The first Redheugh Bridge was completed in 1876 to a design by Sir Thomas Buch, designer of the ill-fated Tay Bridge. This bridge was replaced in 1896 and finally in 1983 by the New Redheugh Bridge.

The New Redheugh bridge continues to serve the traffic requirements of the west of the conurbation and is the latest and at £15,000,000 the most expensive of all bridges.

#### **King Edward Railway Bridge**

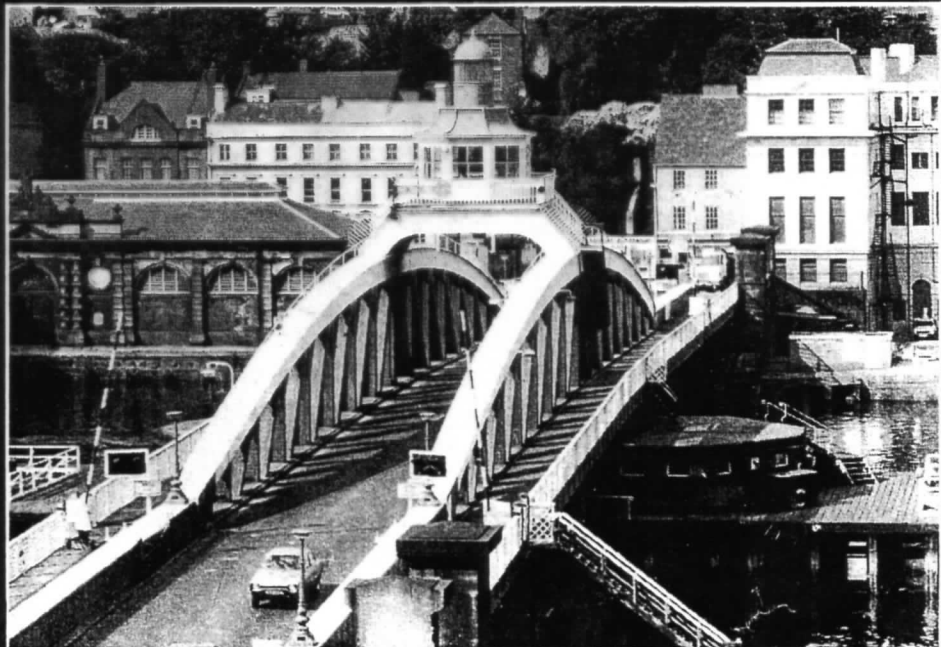
In 1906 the King Edward Railway Bridge was opened by King Edward VII and Queen Alexandra. Designed by C A Harrison of the North East Railway Company and erected by the Cleveland Bridge and Engineering Company at a cost of just over £500,000. The King Edward and High Level bridges complete an impressive railway loop that can be best admired from an aerial view.

#### **Tyne Bridge**

The most well known bridge is the Tyne Bridge completed in 1928 to carry the London-Edinburgh A1 road thus linking the capitals of England and Scotland. Designed by Mott, Hay and Anderson and constructed by Dorman Long and Company's Bridge Division this bridge is best known as a forerunner of the world famous Sydney Harbour Bridge. It is a grade II listed building and therefore of national architectural importance.

Top: Ariel view of railway loop.

Bottom: View of Swing Bridge from Gateshead.







KING EDWARD VII RALWAY BRIDGE.

Opened 1906

*C.R. Subramaniam*

**H.M. DOCKYARD, ROSYTH.**

Messrs. EASTON GIBB & SON, Ltd.'s FINAL ACCOUNT.

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**CLAIM No. 16. MONOLITHS.**

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Drawings, etc., relative to Contractor's Replies  
to Admiralty Answers to the Claim for extra  
cost of Monoliths.



# SEQUENCE OF EVENTS IN SINKING MONOLITHS AT ROSYTH

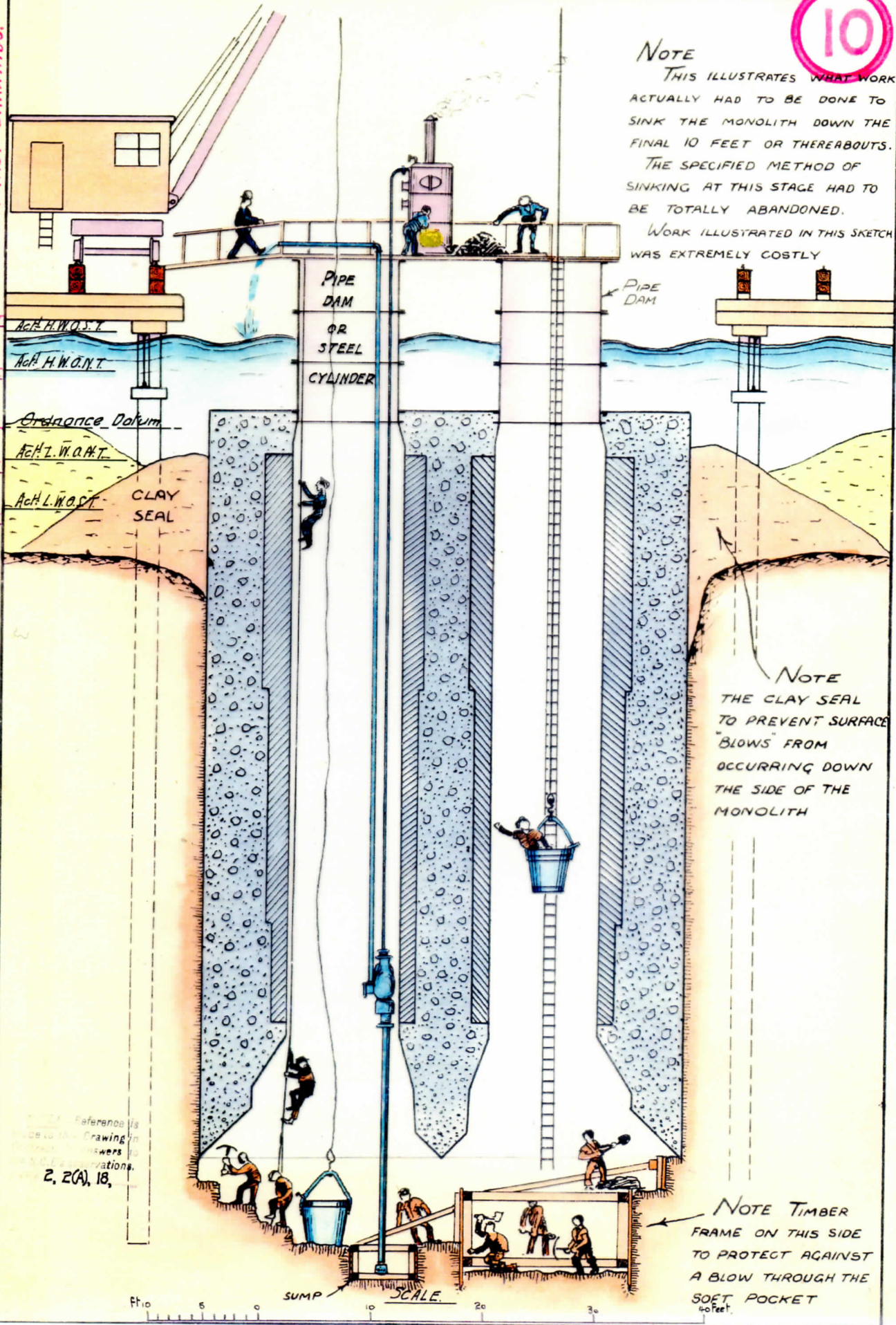
## No 10 PIPE DAMS FIXED TO ALLOW OF HAND EXCAVATION

10

**NOTE**  
 THIS ILLUSTRATES WHAT WORK ACTUALLY HAD TO BE DONE TO SINK THE MONOLITH DOWN THE FINAL 10 FEET OR THEREABOUTS. THE SPECIFIED METHOD OF SINKING AT THIS STAGE HAD TO BE TOTALLY ABANDONED. WORK ILLUSTRATED IN THIS SKETCH WAS EXTREMELY COSTLY

TIDE LEVELS AS SHOWN ON CONTRACT DRAWINGS.

HWOST  
 AcH. H.W.O.S.T.  
 HWONT  
 AcH. H.W.O.N.T.  
 Ordnance Datum  
 AcH. Z.W.O.A.T.  
 LWONT  
 AcH. L.W.O.N.T.  
 LWOST  
 AcH. L.W.O.S.T.



**NOTE**  
 THE CLAY SEAL TO PREVENT SURFACE "BLOWS" FROM OCCURRING DOWN THE SIDE OF THE MONOLITH

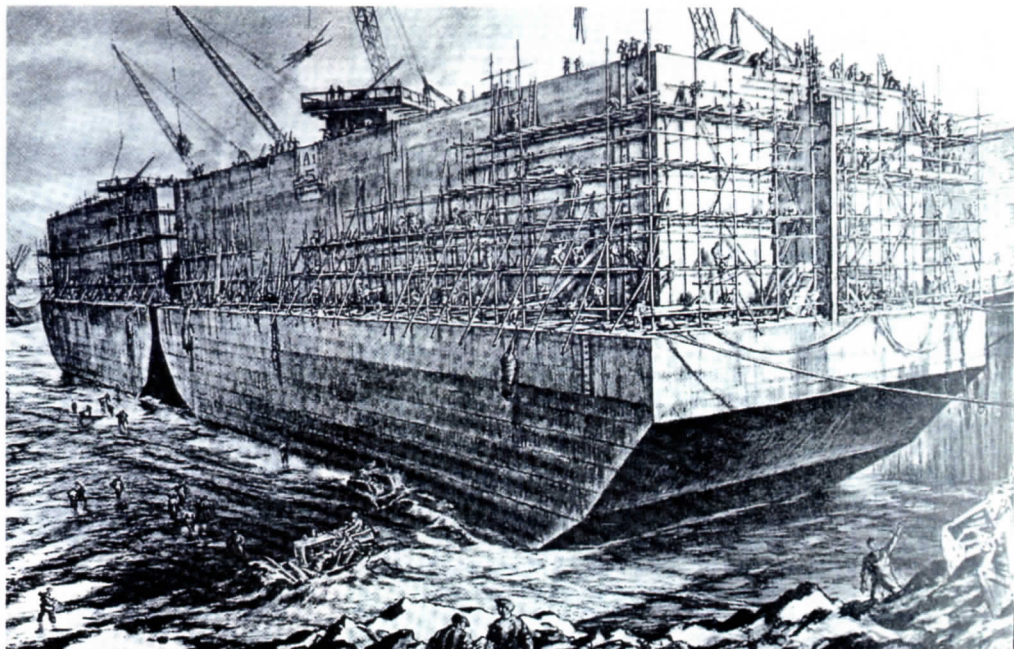
**NOTE** TIMBER FRAME ON THIS SIDE TO PROTECT AGAINST A BLOW THROUGH THE SOFT POCKET 10 FEET

Reference is made to Drawing in the Report on the Sinking of the Monoliths, 2, 2(A), 18,

Ft. 10 5 0 SUMP SCALE 10 20 30



# D-DAY JUNE 1944 MULBERRY HARBOURS



Official Admiralty artist Sir Muirhead Bone's drawing of Phoenix caisson construction.



## SIR CYRIL KIRKPATRICK

SIR CYRIL KIRKPATRICK, a past president of the Institution of Civil Engineers, died at his home at Chalfont St. Giles on August 25. He was eighty-four.

Cyril Reginald Sutton Kirkpatrick was born on October 17, 1872, and was educated at Repton and the Crystal Palace School of Engineering. He then became a pupil and later assistant engineer of Mr. E. B. Thornhill, the chief engineer of the London and North Western Railway. Further valuable experience was gained by spending ten years with various firms as contractors' engineer, largely on railway work. In 1906 he was appointed city engineer of Newcastle, where he carried out quay improvement works.

He was joint author with Mr. F. W. Davis of a paper describing the constructional work on the King Edward VII bridge, a high-level bridge composed of steel trusses carrying the North Eastern main line across the Tyne at Newcastle. It was designed by Dr. Harrison, the railway company's engineer, and built by the Cleveland Bridge and Engineering Company. The paper was noteworthy for the discussion on compressed air working.

Sir Cyril's career with the Port of London Authority commenced in 1910, when he became chief assistant to Sir Frederick Palmer, the chief engineer of the newly constituted Authority. Expansion to meet the requirements of the port for the next twenty years or more was envisaged at that time. Enlargement of Albert Dock, and the provision of a new entrance lock and a passenger landing stage at Tilbury were amongst the works planned. Palmer resigned in 1912, and Kirkpatrick became his successor. The most conspicuous work completed during his term of office, which ended with his resignation in 1924, was the King George V Dock at North Woolwich, which was opened in 1921. He received a knighthood in 1922.

It was at this time that he started to practise as a consulting civil engineer. His firm specialised chiefly in heavy foundations, dock and harbour and sea defence works. Among the undertakings for which he was responsible were the foundations for the power house of the Ford works at Dagenham, foundations and the circulating water system for Tir John North Power Station, Swansea, and foundations for gas-works plant at Stoke-on-Trent, Weston-Super-Mare and East Greenwich; at the latter works he was also responsible for an underground pumping station together with intake and discharge works in the Thames.

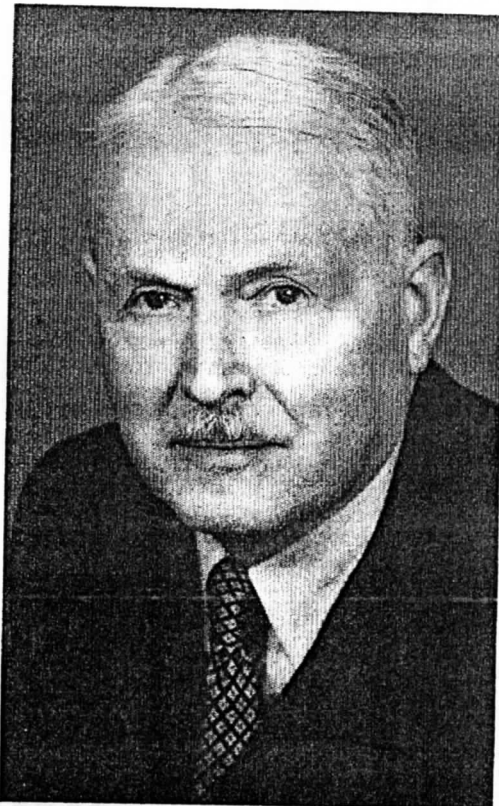
He carried out dock and harbour works at Galway, Maryport and Bangor, Co. Down, and prepared extensive schemes for the improvement and development of the port of Alexandria for the Government of Egypt.

Sir Cyril initiated the design of the civil engineering works for Dekhelia Power Station, Cyprus, the construction of which was completed after his retirement. He was also responsible for the design of power stations in the Sudan.

Perhaps the most important work with which Sir Cyril was associated after leaving the Port of London Authority was in 1943 and 1944, when, as a member of the K.C.D. Group in partnership with Mr. J. D. C. Couper and Mr. Jack Duvivier, he was responsible to the Ministry of Supply for the construction of thirty-three concrete "Phoenix" caissons for the Mulberry Harbour. Most of them were constructed

in East India Import Dock and the South Dock of Surrey Commercial Docks, which were dewatered during the period of construction and flooded when the caissons were substantially complete and could be finished afloat, but a number were partially constructed in basins excavated in the banks of the Thames at Barking and Belvedere, which were then flooded and the caissons towed upstream for completion in the docks.

During his career Sir Cyril gave expert evidence on many Parliamentary Bills, at public inquiries, in courts of law and in arbitration proceedings and acted as arbitrator on several occasions, the most notable



Sir Cyril Kirkpatrick

being the Rosyth Dockyard arbitration. He retired in 1951 and the firm which he founded was incorporated in Scott and Wilson, Kirkpatrick and Partners. He was a colonel in the Engineer and Railway Staff Corps, R.E. (T.F.), and a member of the Société Ingénieurs Civils de France. In 1935-36 he was chairman of the Association of Consulting Engineers. He was also a member of the Smeatonian Society of Civil Engineers. He was from 1926 a representative of the Government for the Permanent International Association of Navigation Congresses and was appointed a member of the Central Rhine Commission by the Government in 1934. He was also for many years a representative of the Foreign Office at the International Technical Consultative Commission of the Suez Canal Company in Paris.

Sir Cyril's presidential address, delivered at the Institution in November, 1931, dwelt on the history of navigation on the Thames and of the various dock and harbour works built on the river. He went on to outline the contemporary problem of development of the port, as he saw it at the time. His interest in civil engineering history was also apparent from his Vernon Harcourt Lecture, given in 1926, which gave a most fascinating account of the historical development of ports and harbours, ending with notes on the world's principal ports.

The  
Engineer  
1957

Telford  
Premium

1951  
1872  
79

Age at  
retiral.



## OBITUARY

SIR CYRIL REGINALD SUTTON KIRKPATRICK, who was born on 17 October, 1872, died on 25 August, 1957.

He was educated at Repton, and later at the Crystal Palace School of Engineering.

After serving as pupil under the Chief Engineer of the London and North Western Railway, Mr E. B. Thornhill, M.I.C.E., he later became an Assistant Engineer on that railway.

From 1898–1902 he worked as Engineer for a number of contractors, almost wholly on heavy bridge and railway construction, including Shrewsbury Station, built over the River Severn. Later, when working as Engineer for the Cleveland Bridge and Engineering Company, he supervised, together with Mr F. W. Davis, the construction of the King Edward VII Bridge over the River Tyne. He was awarded a Telford Premium for a Paper<sup>1</sup> on this bridge, which he presented jointly with Mr Davis.

In 1906 he was appointed City Engineer and Town Surveyor, Newcastle-on-Tyne, where his responsibilities included the carrying out of the quay improvement works.

Sir Cyril joined the Port of London Authority in 1910 as Chief Assistant Engineer under Sir Frederick Palmer, a Past-President of the Institution. Three years later Sir Cyril became Chief Engineer and during the next 11 years he was responsible for a vast construction programme, including the King George V Dock at North Woolwich, which was opened in 1921. In 1922 he was knighted.

As Chief Engineer, his work was of national importance during the 1914–1918 war. He also held the rank of Colonel in the Engineer and Railway Staff Corps of the Royal Engineers; this Corps was not called upon for active service, and despite every effort made by himself, and by senior members of the government on his behalf, he could not be released by the P.L.A. to serve in France as he desired.

He resigned his position with the Authority in 1925 to become a consulting civil engineer in private practice. He founded the firm of Sir Cyril Kirkpatrick & Partners, specializing in heavy foundations, docks and harbours, and sea-defence works. His knowledge embraced many other branches of civil engineering, including that of the excavation of deep shafts by freezing. He also acted as Consulting Engineer to the Egyptian Government.

In 1926 he delivered the Vernon Harcourt Lecture<sup>2</sup> (to students of the Institution) on harbour and dock engineering.

During the 1939–1945 war he formed the K.C.D. group to supervise the construction of concrete caissons for Mulberry Harbour.

Among his other achievements were the harbour works and sea-wall at Maryport; the Galway Harbour development; sea-walls at Llandudno; the civil engineering works at Dehbelia power station, Cyprus; and the foundations and subaqueous tunnels for the Tir John Power Station, Swansea, and for the Ford Motor Company's power station at Dagenham.

In the course of his career Sir Cyril gave expert advice on many Parliamentary

## OBITUARY

bills, at public inquiries, and in courts of law. On several occasions he served as arbitrator, the most notable being the Rosyth Dockyard arbitration.

He was a Member of the Association of Consulting Engineers, a Member of the Société des Ingénieurs Civils de France, a Member of the Smeatonian Society of Civil Engineers, a Member of the Permanent International Association of Navigation Congresses, and a Member of the Permanent Way Institution.

In 1934 he was a member of the Central Rhine Commission, and from 1935 was a member of the International Technical Consultative Committee of the Suez Canal Company. He was also a member of the London County Council Tribunal of Appeal (London Building Act), 1930.

Sir Cyril was elected an Associate Member in 1898 and was transferred to the class of Members in 1909.

He became a Member of Council in 1920 and Vice-President in 1929. He took office as President<sup>3</sup> in 1931.

He is survived by a widow, two sons, and two daughters.

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<sup>1</sup> "The King Edward VII Bridge, Newcastle-on-Tyne." Min. Proc. Instn civ. Engrs, vol. 174 (1907–08), p. 158.

<sup>2</sup> "The development of harbour and dock engineering" (Vernon Harcourt Lecture). Instn civ. Engrs, Sep. Publ., 1926.

<sup>3</sup> Presidential Address: "The tidal Thames". Min. Proc. Instn civ. Engrs, vol. 233 (1931–32), p. 2.

## PROCEEDINGS OF THE INSTITUTION OF CIVIL ENGINEERS

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