

Theses on cement and concrete presented for higher degrees to the Universities of Great Britain 1910-1950

Foreword

In the course of the last four decades, graduates at British Universities have devoted a total of more than three hundred man-years to research into various aspects of cement and concrete. From a tentative beginning at Birmingham before the First World War, interest in concrete spread to Bristol, the City and Guilds College, London (part of the Imperial College of Science and Technology), and to Leeds. The Second World War meant an inevitable interruption, but the number of theses on cement and concrete grew rapidly from 1946 to 1950, the main centres of interest being at Leeds, for a time at Birmingham and afterwards at Durham, and at an increasing number of colleges at London.

Each student has to read an immense amount of published literature before embarking on his own research project, to which he then devotes the best of his energies for two or three years. Yet it often happens that, the research completed, the only record of it is in the student's thesis, lying in the university library. Much of the work is never published, and very often the research is duplicated by subsequent workers in the same field, simply because the existence of the previous work is known only to a very limited number of people.

In the hope, therefore, that if they are aware of the ground already covered, future research students may spend their energies more profitably, taking our knowledge a step further instead of duplicating work already done, we are publishing a list of theses on cement and concrete presented for higher degrees to the Universities of Great Britain. In the present issue we list theses submitted up to and including 1950. The list will be continued in a future issue and brought up to date from time to time.

Only postgraduate theses are listed here, and work

submitted for the degree of D.Sc. has not been included since, of course, it is already available in published form.

While every effort has been made to ensure the accuracy of this list, it is always possible that errors may creep into a compilation of this nature, and we should be grateful if any mistakes or omissions are brought to our notice, so that corrections or additions may be included in the next issue of this list.

Regulations regarding the use of theses vary considerably from one university to another. At one extreme, copies may be lent with a minimum of formality to any responsible inquirer; at the other, copies may be only consulted in the library by persons specifically authorized by the head of the department concerned. It is suggested that those not familiar with the regulations for a particular university should address their inquiries in the first instance to the Cement and Concrete Association.

In the case of research carried out at the University of London, the college is indicated after the research worker's name by initials in parentheses as follows:

BP	Battersea Polytechnic
IC	Imperial College (City and Guilds College)
KC	King's College
NP	Northampton Polytechnic
QMC	Queen Mary College
UC	University College
Ext	External

In the case of degrees granted by the University of Durham, the research work was carried out at King's College, Newcastle.

1910

BIRMINGHAM

Villiers, P. W. *The transverse strength of reinforced concrete slabs.* (M.Sc.)

1913

BIRMINGHAM

Blackmore, E. W. *Concrete arches.* (M.Sc.)
Morgan, F. L. *Plain and reinforced concrete.* (M.Sc.)
Shabam, I. *Researches on reinforced concrete beams and columns of triangular section.* (M.Sc.)

1914

BIRMINGHAM

Crowther, O. H. *Strains in reinforced concrete beams.* (M.Sc.)

1921

BRISTOL

Stradling, R. E. *Portland cement—its testing.* (M.Sc.)

1922

BIRMINGHAM

Stradling, R. E. 1. *The resistance to fire of concrete and reinforced concrete.* 2. (i) *Some causes of cracking and disintegration of Portland cement concrete* (ii) *Portland cement—its testing and specification—British and foreign methods;* (iii) *some experiments on the effect of high sulphur content in Portland cement.* (Ph.D.)

1924

BIRMINGHAM

Barrow, F. L. *The uniformity of cement and sand tension briquettes.* (M.Sc.)
Toy, H. C. *Permeability of concrete. Effect of age upon modulus of elasticity of concrete in compression.* (M.Sc.)

BRISTOL

Bundock, W. H. *Concrete tests and minor uses.* (M.Sc.)

1926

BIRMINGHAM

Gibbons, C. O. L. *The distribution of stress in reinforced concrete frames.* (M.Sc.)

LONDON

Peppiatt, C. H. (IC). *Cinder concrete, and the temperature changes in cements and concretes during setting. Experiments carried out by Peppiatt and H. D. Morgan.* (M.Sc.)
Read, R. S. (IC) *Aerated concrete.* (M.Sc.)

1927

BRISTOL

Huntley, A. R. *The colloidal theory of cement.* (M.Sc.)
Lateaf, M. A. El. *The construction and testing of reinforced concrete beams.* (M.Sc.)
Leheta, A. K. *Some tests on plain and reinforced concrete.* (M.Sc.)

LONDON

Burke, E. (IC) *The constitution of Portland cement, with special reference to its microscopy.* (M.Sc.)
Morgan, H. D. (IC) *Cement and concrete with special reference to the rise in temperature of setting cement and clinker aggregate.* (M.Sc.)

1928

BIRMINGHAM

Dodds, T. E. *Experimental and theoretical investigations on rectangular reinforced concrete frames.* (M.Sc.)

1929

LONDON

Kumar, S. S. (IC) *The effect of consistency and voids on the strength of cements and mortars.* (M.Sc.)
Stevens, S. (UC) (i) *A study of influence lines.* (ii) *An investigation of the distribution of stress in reinforced concrete.* (M.Sc.)

WALES

Francis, W. E. (Swansea) *Some experiments on the effects of moisture content on concrete.* (M.Sc.)

1930

BIRMINGHAM

Borai, Abd El-Morim. *Strength of concrete and variation of its modulus of elasticity.* (M.Sc.)

LEEDS

Green, T. G. S. *The shearing strength of reinforced concrete beams with reference also to the tensile stresses in the concrete and steel; together with experiments on methods of determining the strength of concrete in torsion.* (M.Sc.)
Saleh, A. el A. *Strength of reinforced concrete T-beams with measurements of deformations.* 2 Vols. (Ph.D.)
Whitaker, T. *Elastic and plastic strain in concrete.* (M.Sc.)

LONDON

Gadhoke, S. R. (IC) *“Aero-crete.”* (M.Sc.)
Shaikh, K. G. (IC) *The modulus of elasticity of concrete under compression.* (M.Sc.)

1931

BIRMINGHAM

Bakir, M. H. *Investigations on reinforced concrete structures.* (M.Sc.)

BRISTOL

Cherry, H. C. E. *The influence of earthquakes on structural design.* (M.Sc.)

1932

BIRMINGHAM

Bakir, M. H. *Investigations on reinforced concrete structures.* (Ph.D.)

Hashim, M. L. *Investigations on bond resistance in reinforced concrete.* (M.Sc.)

LEEDS

Evans, R. H. *Elastic, plastic and shrinkage properties of concrete with applications to strain and stress distribution and to deflection of reinforced concrete beams.* (Ph.D.)

LONDON

Draddy, F. E. (IC) *Analysis of concrete road failures and the determination of values for the coefficient of expansion of concrete of varying mixes and aggregates in relation to such failures.* (M.Sc.)

1933

BELFAST

Neill, J. M. *Railway viaduct in reinforced concrete.* (M.Sc.)

BIRMINGHAM

Foong, S. K. *Investigation on concrete aggregates.* (M.Sc.)

LEEDS

Fahmy, H. K. *Strength and elastic properties of steel and concrete beams in bending and shear.* (M.Sc.)

LONDON

Boorman, A. G. (IC) *The relative reliability and economy of concrete of varying proportions.* (M.Sc.)

Gibbs, E. F. (IC) *Tests of uniformly loaded concrete arches.* (M.Sc.)

Marc, R. C. (IC) *The relative thermal conductivities of various concretes.* (M.Sc.)

Paes, A. V. (IC) *Effects of hydrated lime on the properties of Portland cement concrete.* (M.Sc.)

1934

LONDON

Chablani, M. B. (IC) *Volume changes in concrete, and shrinkage stresses.* (M.Sc.)

1935

LEEDS

Allatt, H. A. *The influence of web reinforcement on the elastic and plastic deformations in reinforced concrete beams.* (Ph.D.)

Thomlinson, J. *The distribution of stresses in reinforced concrete beams with particular reference to the steel stresses.* 2 Vols. (Ph.D.)

LONDON

Dogra, R. N. (IC) *Tar concrete paving mixtures.* (M.Sc.)

Pearson, R. W. (IC) *The bond between mortar and brick.* (M.Sc.)

1936

BIRMINGHAM

Kirkham, R. H. H. (1) *Further investigation of the properties of structural members composed of rolled steel joists encased in concrete.* (2) *An investigation of the formation of cracks in reinforced concrete.* (M.Sc.)

BRISTOL

Sparkes, F. N. *Report on the control of concrete quality in the field with special reference to the moisture content of the aggregates.* (M.Sc.)

EDINBURGH

Ross, A. D. *Plastic yield of concrete under sustained loads.* (Ph.D.)

LEEDS

Wood, R. H. *The elasticity and plasticity of natural and artificial stones in compression and tension, including transverse strains; and, The influence of pressure during pouring on the compressive strength of concrete.* 2 Vols. (Ph.D.)

LONDON

Bilaney, M. M. (IC) *An experimental investigation of the flexural rigidity of reinforced concrete beams.* (M.Sc.)

Skempton, A. W. (IC) *A study of reinforced concrete columns subject to flexure.* (M.Sc.)

1937

GLASGOW

Hunter, W. *Segregation and separation in concretes and mortars.* With Vol. of prints. (Ph.D.)

LONDON

Nurse, R. W. (Ext) *The system $\text{CaO-CaO} \cdot \text{Al}_2\text{O}_3\text{-CaO} \cdot \text{TiO}_2$.* (M.Sc.)

Thomas, F. G. (Ext) *Some problems in reinforced concrete: cracking; redistribution of stresses and moments in reinforced concrete structures; experimental and analytical investigation of bending in reinforced concrete columns; the strength of long reinforced concrete columns.* (Ph.D.)

Vadhelvala, R. M. (IC) *Linear shrinkage of cements during setting.* (Ph.D.)

1938

LONDON

- Collins, A. R. (IC) *The workability of concrete in relation to the grading of the aggregate.* (M.Sc.)
Hunter, L. E. (Ext) *The deflection of reinforced concrete arches in theory and practice.* (M.Sc.)
Makhijani, H. U. (IC) *An experimental determination of the flexural rigidity of doubly reinforced concrete beams.* (M.Sc.)
Tembe, N. R. (IC) *Experimental investigation of the torsional rigidity of plain and reinforced concrete members.* (M.Sc.)

1939

LONDON

- Hartley, P. (IC) *Bituminous jointing materials.* (M.Sc.)
Marshall, W. T. (IC) (i) *An experimental study of the strength of thin isolated column bases in reinforced concrete.* (ii) *An experimental investigation into the torsional rigidity of plain and reinforced concrete and the application to problems of design.* (Ph.D.)
Murdock, L. J. (Ext) *The weathering of concrete surfaces.* (M.Sc.)
Purandare, N. N. (IC) *Two studies in reinforced concrete.* (i) *The effect on the strength of Tee beams on casting the flange and rib separately.* (ii) *The effects of re-vibration on the strength of concrete.* (M.Sc.)

1940

LONDON

- Dadlani, A. V. (UC) *Effect of vibration on hydration of cement and permeability of vibrated concrete.* (M.Sc.)
El-Baroudy, H. F. (BP) *The strength, shrinkage and creep of concrete as affecting the design of reinforced concrete structures containing liquids.* (Ph.D.)
Matthews, D. D. (Ext) *The effect of the grading of the aggregate on the strength and workability of concrete.* (M.Sc.)
Patel, C. M. (IC) *An experimental study of concrete slabs supported on edges.* (M.Sc.)

1941

BIRMINGHAM

- Rao, K. L. *Crack formation in reinforced concrete and its prevention by prestressing.* (Ph.D.)

LONDON

- Gimpel, J. (IC) *An experimental study of a reinforced concrete square slab subjected to impact.* (Ph.D.)
Marriott, G. B. (IC) *Bituminous joints in concrete.* (M.Sc.)

1942

LEEDS

- Wilson, G. *On prestressed concrete.* (M.Sc.)

LONDON

- Khan, M. I. M. (IC) *An experimental investigation of prestressed reinforced concrete columns.* (M.Sc.)

1944

LEEDS

- Turner, A. *Modulus of rupture of concrete.* (M.Sc.)

LONDON

- Collins, A. R. (Ext) *The effect of constituent materials on various properties of concrete.* (Ph.D.)
Lambert, A. P. (KC) *The fundamental factors in the design of concrete mixtures.* (M.Sc.)
McMahon, R. F. (Ext) *Temperature stresses in concrete slabs.* (M.Sc.)

1945

LEEDS

- Coapes, W. D. *Prestressed concrete.* (M.Sc.)

1946

BELFAST

- Sidwell, E. H. *An investigation into the strength of the "ladacrete" reinforced concrete floor.* (M.Sc.)

BIRMINGHAM

- Arnold, H. K. *The behaviour of plain and reinforced concrete beams under sustained loading.* (M.Sc.)

LEEDS

- Hawkes, J. *Bond stresses in reinforced concrete beams and columns.* 2 Vols. (Ph.D.)

LONDON

- Champion, S. (Ext) *The design of unreinforced concrete road slabs.* (M.Sc.)
Evans, V. (Ext) *The setting and hardening of acid-resisting cement comprising sodium silicate solutions, fluosilicates and fillers.* (M.Sc.)
O'Sullivan, T. P. (Ext) *The economic design of rectangular reinforced concrete sections.* (Ph.D.)

1947

BELFAST

- Wilson, E. M. *The effect of sand particle size on the strength and density of normal Portland cement mortars.* (M.Sc.)

BIRMINGHAM

- Kirkham, R. H. H. *An investigation of the properties of composite beams consisting of rolled steel joists encased in concrete.* (Ph.D.)

LEEDS

Sunderland, A. *Shear tests in reinforced concrete beams.* (Ph.D.)

LONDON

Holland, H. L. E. (UC) (1) *A comparison of the standard and the ultimate load methods of reinforced concrete design.* (2) *The electrical resistance wire strain gauge—construction and some applications.* (M.Sc.)

Prentis, J. M. (KC) *The strength of long reinforced concrete columns with special reference to the effects of creep.* (M.Sc.)

McMahon, R. F. (Ext) *Experimental investigation by means of scale models into the effects of explosives on some concrete structures.* (Ph.D.)

Murdock, L. J. (Ext) *The efficiency of concrete mixing plant.* (Ph.D.)

Seed, H. B. (KC) *Non-elastic deformations in concrete and their effects on design.* (Ph.D.)

1948

BELFAST

Stoner, W. A. *The effect of a surface active compound on the density and strength of sand-cement mortars.* (M.Sc.)

BIRMINGHAM

Box, M. H. *Shrinkage and plastic yield of reinforced concrete.* (M.Sc.)

Hsieh, Tso-Kung. *Shrinkage and time yield phenomena of concrete.* (Ph.D.)

DURHAM

McIntosh, J. D. *Hardening of concrete at refrigeration temperatures with particular reference to electrical curing.* (M.Sc.)

LEEDS

Campbell, G. A. *Modulus of rupture of concrete.* (M.Sc.)

Thompson, G. H. *The influence of lime on the binding of solid aggregates.* (M.Sc.)

LONDON

Liu, C. W. (IC) *Multi-storey building foundations—the relation between the strength and flexibility of rafts and the yielding capacity of ground.* (M.Sc.)

Saad, S. (UC) *An analysis and an investigation of full-scale tests on concrete pavements under heavy wheel loads.* (M.Sc.)

Smolira, M. (IC) *An analytical and experimental investigation of the behaviour of thin cylindrical shell roof structures.* (Ph.D.)

Wang, P. S. (IC) *Theoretical and experimental investigation into the stresses at the rim of a reinforced circular hole in a flat strip under tension.* (Ph.D.)

1949

DURHAM

Gau, C. C. *Effect of entrained air in concrete.* (Ph.D.)

Preston, A. G. *The effects of air entrainment and dust additions on concrete.* (M.Sc.)

LEEDS

Jones, J. A. *The encasement of rolled steel ~~bars~~ in concrete.* (M.Sc.)

Marshall, G. *A study of prestressed concrete with reference to bond stress and creep and post-tensioning.* (Ph.D.)

Wilby, C. B. *The strength of reinforced concrete beams in shear.* (Ph.D.)

LONDON

French, C. C. J. (KC) *An experimental investigation into methods for the determination of the size characteristics of fine powders by photometric technique.* (M.Sc.)

Moharram, A. (KC) *Composite members formed of rolled steel sections encased in concrete: useful strength based on ultimate strengths in the plastic ranges.* (Ph.D.)

Ponnamperuma, G. (KC) *The particle size distribution and the specific surface developed in the fine grinding of Portland cement and other materials.* (Ph.D.)

Gidwani, G. J. (IC) *An experimental study into the behaviour of cold twisted bars for concrete reinforcement and recommendation for the design methods and stress in bending.* (M.Sc.)

Krishnamacharyulu, K. (IC) *A study of the use of expanding cements in prestressed concrete design.* (M.Sc.)

Mattock, A. H. (IC) *A study of design methods for "end anchored" prestressed concrete beams.* (M.Sc.)

Menon, T. M. (IC) *Effect of curing conditions on the compressive strength of cement-stabilised soils.* (M.Sc.)

Mygind, H. H. S. (IC) *Shear forces in reinforced concrete beams with special reference to electric wire strain gauges.* (M.Sc.)

Stead, H. D. (IC) *A study of plastic theories for the ultimate strength of reinforced concrete beams in bending.* (M.Sc.)

1950

BELFAST

Kinsella, J. *The mechanical behaviour of cold-twisted steel as reinforcement for concrete.* (M.Sc.)

McKenzie, J. C. *Ordinary Portland cement as a soil stabilization agent.* (M.Sc.)

CAMBRIDGE

Blakey, F. A. *Ultimate strength of concrete members.* (Ph.D.)

LONDON

Bray, J. W. (KC) *An electrical analogue for the estimation of temperatures in mass-concrete structures.* (Ph.D.)

Erntroy, H. C. (QMC) *The workability of concrete and effects of the use of two "wetting agents."* (M.Sc.)

Fernandez, J. A. (UC) *An investigation into the effect of vibration on the hydration of Portland cement.* (M.Sc.)

Fisher, D. (BP) *The strength of concrete in combined bending and torsion.* (Ph.D.)

Grassam, N. S. (BP) *The use of electrical strain gauges on concrete specimens under simple and complex loading.* 2 Vols. (Ph.D.)

Hasan, A. (IC) *The study of reinforced concrete flat-plate structures.* (M.Sc.)

Millard, R. S. (Ext) *A study of the properties of filling and sealing materials for concrete road joints, and the development of laboratory performance tests to assess the value of sealing materials.* (Ph.D.)

Nabi, G. A. (UC) *An investigation of the effect on the design of reinforced concrete slabs of the flexibility and torsion of the supporting beams.* (M.Sc.)

Raine, H. N. (BP) *The physical properties of concrete as affected by the addition of a wetting agent to the mortar.* (M.Sc.)

Selvanayagam, P. (IC) *An analytical and experimental investigation of the distribution of stress in shell structures.* (Ph.D.)

Venkatramiah, S. (UC) *Workability of concrete.* (M.Sc.)

Ziauddin, V. M. S. (IC) *Ultimate strength of prestressed concrete beams with reference to the plastic theory.* (M.Sc.)

Whitlam, E. F. (Nton P) *Healing in concrete after compression failure, or autogenous healing.* (M.Sc.)