



Symposium

to celebrate the lifetime contributions of
Emeritus Professors Tom Paulay and Bob Park

Robert Park Research Contributions 1958 to 2002

An outline by
David C Hopkins

Overview

- Introduction
 - Career Summary
 - Research in Concrete Structures
- Research Overview
 - Graduate Students
 - Publications
 - Committee Representation
 - Honours
- Key Contributions
- Closing Remarks

Career Summary

■ *Education*

- Grammar School, Suva, Fiji
- Canterbury University College, New Zealand
- University of Bristol, England

■ *Academic Qualifications*

- B.E.(Civil)(Hons)(NZ), 1956
- M.E.(With Distinction)(NZ), 1958
- Ph.D.(Bristol), 1964
- D.Eng. (honoris causa) (Cantuar)

Career Summary

■ *Professional Experience*

- Christchurch Drainage Board 1955-56
- Assistant Lecturer Canterbury University 1956
- Lecturer Canterbury University 1957-59
- Lecturer University of Bristol 1959-65
- Senior Lecturer Canterbury University 1965-67

Career Summary

■ University of Canterbury:

- Reader in Civil Engineering 1967-68
- Professor of Civil Engineering 1968-1999
- Head of Department of Civil Engineering 1978-1992
- Deputy Vice-Chancellor 1993-1999
- Emeritus Professor of Civil Engineering 1999 -

Memberships (Selected)

- Fellow of **Institution of Civil Engineers** (United Kingdom) 1974
- Fellow of the **Institution of Structural Engineers** (United Kingdom) 1974
- Fellow of **Royal Society of New Zealand** 1978
- Honorary Member of **New Zealand Concrete Society** 1987
- Fellow of **Royal Academy of Engineering** (United Kingdom) 1990

Memberships (Selected)

- Life Member of **New Zealand Society for Earthquake Engineering** 1997
- Honorary Member of **American Concrete Institute (USA)** 1997
- Distinguished Fellow of **Institution of Professional Engineers, New Zealand** 1998
- Honorary Life Member of **Canterbury Structural Group** 1999
- Honorary Member of **International Association for Earthquake Engineering** 2000

Research Overview

- Concrete structures
- Performance in earthquake
- Reinforced, prestressed, precast
- Researcher
- Teacher
- Mentor
- Immense contribution to structural design practice:
 - in New Zealand
 - overseas

Graduate Students

- Doctor of Philosophy
 - MJN Priestley 1966
 - RWG Blakeley 1971
 - KJ Thompson 1975
 - JB Mander 1983
 - JI Restrepo-Posada 1992

and 17 others

Graduate Students

- Master of Civil Engineering

- LM Megget 1971
- JA Norton 1972
- PD Leslie 1974
- EC Stevenson 1980
- JB Milburn 1982
- DK Bull 1984

and 34 others

Publications

- Main Subjects:
 - Reinforced Concrete
 - Bridges
 - Buildings/Frame Structures
 - Columns
 - Beam-Column Joints
 - Prestressed Concrete
 - Bridges
 - Buildings/Frame Structures
 - Columns
 - Beam-Column Joints

Publications

■ Main Subjects:

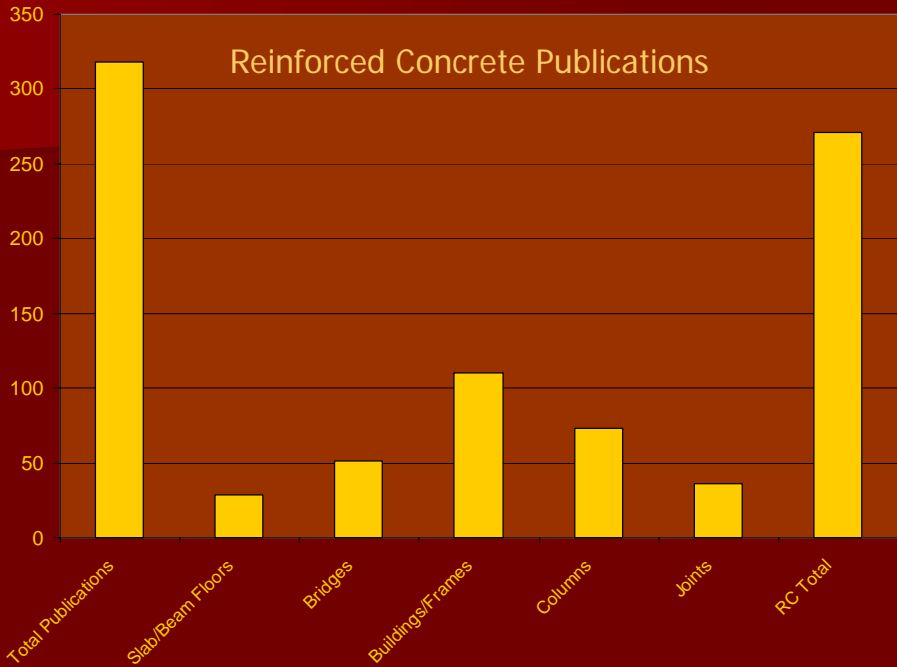
- Precast Concrete
 - Structures
 - Columns
 - Floors
 - Walls/Tilt-up panels
- Steel reinforcement
 - Stress-strain relationships
 - Detailing for ductility, especially for high grades.
- High Strength Concrete
 - Use in columns and frames
- Light weight aggregate concrete

Publications

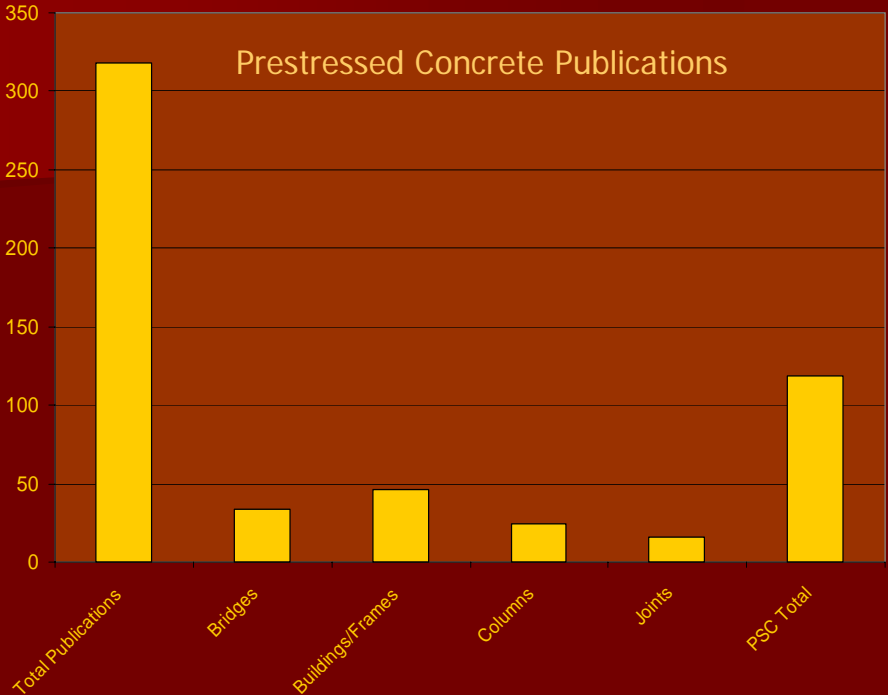
- Aspects covered:
 - Seismic behaviour/response/resistance
 - Ductility of elements
 - Detailing to achieve ductility
 - Development of design applications and standards
 - Construction applications
 - Assessment and retrofit of existing structures

- Over 330 total publications

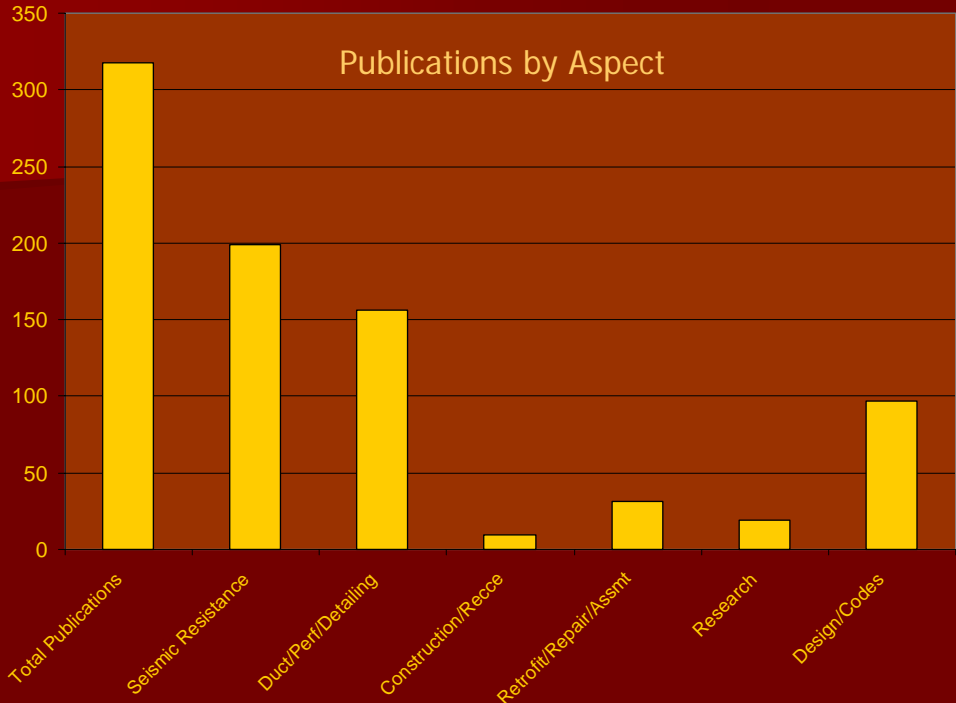
Reinforced Concrete Publications

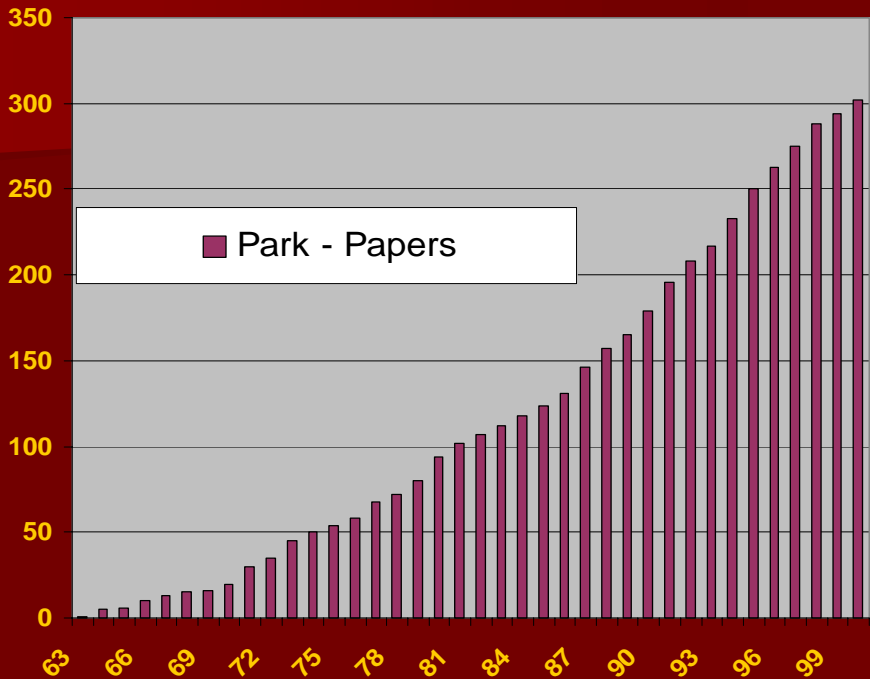


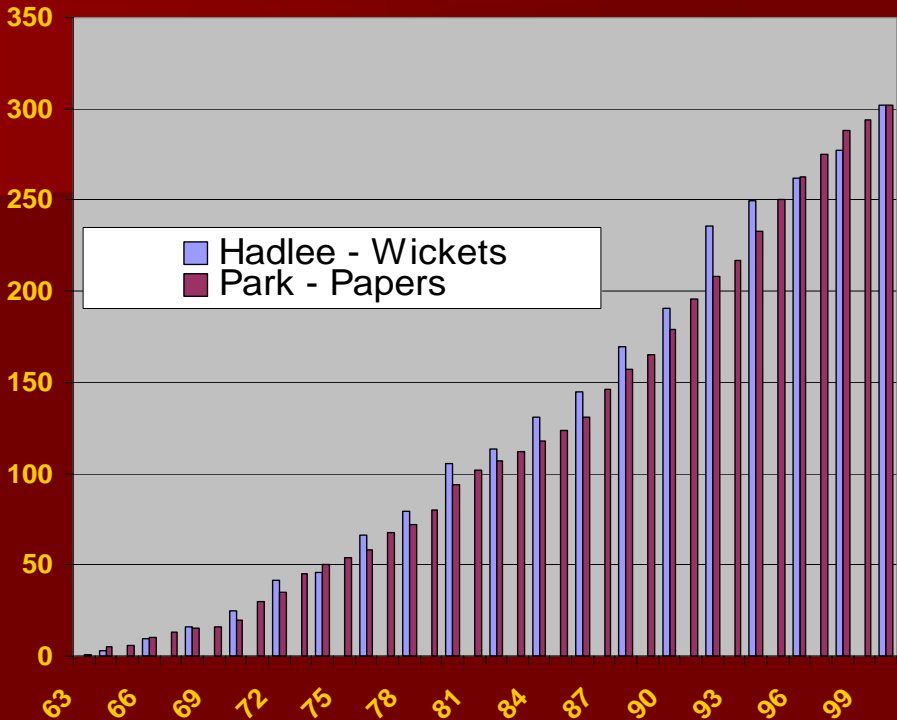
Prestressed Concrete Publications



Publications by Aspect







Committee Representation

- Wide range of topics
- Long service
- NZ and international committees
- Enhanced NZ reputation
- International seminars
- Quality contributions

Honours

- Fellow of the Royal Society 1978
- IPENZ Professional Commitment Award, 1993.
- OBE award in Queen's Birthday Honours 1995
- Honorary Membership of the American Concrete Institute in 1997

"in recognition of his worldwide contributions to the understanding of reinforced and prestressed concrete, particularly with its resistance to earthquakes".

Honours

- Inaugural Research Medal of the University of Canterbury 1998
- IPENZ Millenium 2000 Award.
- Honorary Membership of the International Association for Earthquake Engineering 2000.
- Honorary Award of the International Federation of Structural Concrete 2002.

Key Contributions

■ Reinforced Concrete

■ Slabs

- Yield line analysis made practical

■ Bridges

- *Seismic Design of Bridges*, 1980, a de facto code of practice.

■ Buildings/Frame Structures

- Practical parameters for achieving ductility

■ Columns

- Design definitions for confining steel

■ Beam-Column Joints

- Many tests on joint core behaviour.

Key Contributions

■ Prestressed Concrete

■ Bridges

- *Seismic Design of Bridges* 1980
- de facto code of practice

■ Buildings/Frame Structures

- *Recommendations for the Design and Detailing of Ductile Prestressed Concrete Frames for Seismic Loading*
- a highly influential and important paper.

■ Beam-Column Joints

- Examined and developed parameters to achieve ductile behaviour

Key Contributions

■ Precast Concrete

■ Structures

- *Guidelines for the Use of Structural Precast Concrete in Buildings*
- Leading role
- A widely acclaimed publication.

■ Floors

- Alerted the profession to concerns as detailing of supports diverged from monolithic reinforced concrete and introduced discontinuities.

■ Walls/Tilt-up panels

- Tested common configurations for integrity under seismic loading

Key Contributions

- Seismic behaviour/response/resistance
 - *Reinforced Concrete Structures*, Park and Paulay 1975
 - Detailing to achieve ductility
 - Development of design applications and standards
 - Assessment and retrofit of existing structures

Closing Remarks

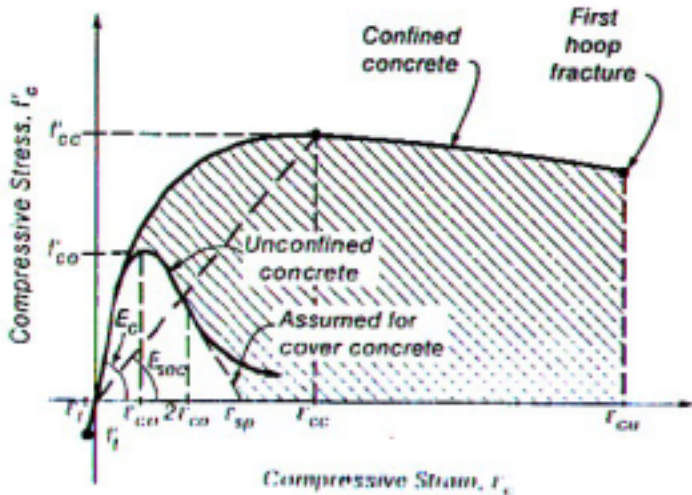
- Research work
 - Relevance to issues of the day
 - Forward-looking approach
- Publications
 - Clarity of expression
 - Practical appeal with designers
 - Quality of analysis and insights

Closing Remarks

■ Contribution

- Sharing of knowledge and wisdom
- Countless committees / study groups
 - thorough and penetrating analysis
 - daunting preparation
- Motivation of students
 - while at university
 - for many years afterwards

Summary Diagram



Extraordinary Contribution

- IPENZ Millenium 2000 Award
 - *Awarded to Professor Bob Park for his leadership of structural engineering research, and his determination to achieve sound answers to difficult challenges; for his generous and unstinting efforts to pass on his knowledge to engineers in so many countries; and for his massive contribution to his chosen profession in New Zealand.*
- Contribution to world of Earthquake Engineering
 - Immense
 - Continuing