Index

Author Biographies

John W. Bull (Editor) is a lecturer in Structural Engineering in the Engineering Design Centre and in the Department of Civil Engineering at the University of Newcastle upon Tyne. He has published widely in computational engineering and has published over one hundred and twenty books and papers. He is also an acknowledged expert in the field of soil-structure interaction, concrete pavements, aluminium design and timber design. His current area of research is in Self-Designing Structures and in the use of computational modelling for the determination of the effects of underground voids on above ground structures.

John W. Bull was awarded his BSc (1971) and PhD (1974) by the University of Wales (Cardiff) then gaining the professional qualifications, CEng (1976), MICE (1976), MIMunE (1977), FIWSc (1989), Eur Ing (1990), MIStructE (1991) and FIHT (1993). Between 1974 and 1979 he was employed by Durham County Council designing and building bridges and other civil engineering structures. In 1979 he moved to the Department of Civil Engineering at the University of Newcastle upon Tyne. In 1994 he moved to the Engineering Design Centre for Marine and Other Made to Order Products, within the University of Newcastle upon Tyne from where he developed research into Elastic and Ultimate State Design Tools for Stiffened Shell Structures and into Self-Designing Structures. He presently holds an EPSRC research grant entitled EDO-NET; Engineering Design Optimisation Network which brings together major groups in industry and in academia with the aim of setting up a university based optimisation research centre.

He is the editor or author of a number of books dealing with computational engineering including: 'Numerical analysis and modelling of composite materials' (Blackie Academic and Professional), 'Soil structure interaction: numerical analysis and modelling' (Chapman and Hall), 'Finite element applications to thin walled structures' (Elsevier Science), 'Finite element analysis of thin walled structures' (Elsevier Science) and 'Engineering analysis using PAFEC finite element software' (Blackie and Sons).

He is a member of the Editorial Board of the International Journal of Computers and Structures and has been a member of the editorial board of Structural Engineering Review. Since 1993 he has been a member of the editorial board of seventeen international conferences. He also acts as referee for journals and publishing houses.

Takayoshi Aoki is currently Associate Professor of Structural Engineering in the School of Design and Architecture in Nagoya City University in Japan.

Educated initially at Toyohashi University of Technology he was later awarded his doctorate from Tokyo University. Professor Aoki has held posts in Nagasaki University, Miyagi National College of Technology, and Nagoya City University, and latterly has been visiting Associate Professor at the Politecnico di Torino in Italy.

His principal research interests are in theoretical research on masonry structures, structural restoration of historical masonry structures, experimental research of mortar used for historical masonry structures and experimental research on a non-destructive testing method for concrete.

Both the International Scientific Advisory Committee of STREMA '91 and the WG-17 (Historical Structures) of the International Association for Shell and Spatial Structures have benefitted from his expertise, and he is a regular contributor to conferences worldwide with several published Papers to his credit.

He has been the recipient of awards from the Japan Concrete Institute in various sectors on several occasions.

Charles Augarde is a Lecturer in Civil Engineering at the School of Engineering, Durham University. His research interests are split between topics in structural and geotechnical engineering which are linked by the use of complex numerical modelling. At present he is involved with the development of methods for the prediction of damage to structures affected by tunnelling, analysis of tunnel stability and the mechanics of masonry arch bridges.

Dr Augarde obtained his BSc in 1986 from Lancaster University. He then spent six years in industry, working for Manchester City Engineer's Department, spending time on site and in design offices. His final three years were spent in the Bridge Assessment group as an Assistant Engineer. In 1993 he was awarded an MSc in Structural Engineering Computational Technology at Heriot-Watt University and in 1994 went on to a three-year research assistantship at the Department of Engineering Science at Oxford University. During this period he developed his current interest in tunnelling, which formed the subject of his doctoral thesis (1997). After a brief period back in industry, in London, Dr Augarde returned to academia as a lecturer in structural engineering at the School of Architecture and Engineering at the University of Westminster. He moved on from there, to a Departmental Lecturership at Oxford (1997) and to his current post in 2001.

He is the author of a number of papers concerned with numerical models of tunnelling and general finite element techniques. Dr Augarde has also pursued his interest in the failure behaviour of masonry arches through laboratory testing, an approach which led to the Institution of Structural Engineers' Model Analysis Award in 1999 for undergraduate project work.

Nenad Bicanic is Regius Professor and Head of Department of Civil Engineering, University of Glasgow. Dipl Ing (Zagreb), PhD (Wales), Fellow ICE, Fellow IACM (International Association for Computational Mechanics). Joined the University of Glasgow in 1994, after nine years at the Department of Civil Engineering in Swansea. Member of ASCE/ACI Committee on Finite Element Analysis of Concrete Structures.

Founding member and past chairman of ACME-UK, the UK Association for Computational Mechanics in Engineering. Principal organiser of an established EURO-C series of international conferences on computational modelling of concrete structures in 1984, 1990, 1994, 1998 in collaboration with universities in Delft and Vienna. Research interests include the behaviour and constitutive modelling of concrete at extreme conditions (high temperature, transient dynamics) and the development of computational modelling frameworks for problems involving continua and discontinua (rock blasting, structural masonry, flow in discontinuous fractured rock). Involved in a number of structural integrity assessments and computational modelling of safety critical structures. Author of over 150 papers in international journals, edited books and conference proceedings.

Francesco Genna is Professor of Structural Engineering at the University of Brescia, Italy. Born in Verona, Italy, in 1957, he obtained his degree in structural engineering at the Politecnico of Milan in 1980. Appointed Assistant Professor at the Department of Structural Engineering, Politecnico of Milan, in 1983, he worked in that position until 1991. He then moved as Associate Professor to the University of Brescia, where he was appointed Full Professor in 1994.

In 1984-1985 he visited the Division of Engineering at Brown University as a research assistant; in 1989 he spent several months in the same position at the Materials Department of the University of California, Santa Barbara. He has also collaborated with Hibbitt, Karlsson & Sorensen, Inc., developing software for the finite element code ABAQUS.

His research interests range from the nonlinear stress analysis by finite elements through the study of composite materials to the implementation of finite element codes in parallel processing environments. Recently his interests have included biomechanics topics, such as the stability of osteointegrated dental implants.

He has received research grants from both the Italian Ministry of University and Scientific and Technologic Research and from several private companies.

He has taught or is currently teaching classes on strength of materials, finite elements and plasticity.

He is author or co-author of about eighty technical papers and of four books on strength of materials, finite element analysis and elastic-plastic constitutive laws.

Matthew Gilbert is currently the John Carr Lecturer in Construction at the University of Sheffield. He has a number of years of experience developing novel analysis methods for concrete and masonry structures. Although particularly interested in the application of limit analysis methods, he also has experience of developing realistic constitutive relationships for modelling brittle fracture in masonry. For more than a decade he has also been involved in devising and conducting static and dynamic load tests on full-scale masonry structures.

He graduated with a first class degree in Civil and Structural Engineering from the University of Sheffield in 1989. Following a brief period spent with the civil engineering contractor Henry Boot, he joined Bolton Institute in 1990, where he worked

with Clive Melbourne on various aspects of the behaviour of masonry arch bridges. In 1993 he was awarded a University of Manchester PhD for this work. He then joined the University of Sheffield, employed first as a Research Associate, and subsequently as a Lecturer (since 1996).

He is the author or co-author of over 30 research papers on various aspects of the response of masonry structures. He is a recent (1999) recipient of the Institution of Structural Engineers' Husband Award for a paper published in their journal (on the behaviour of multispan masonry arches). He is currently working as a principal investigator on an EPSRC funded research project concerned with developing methods of improving the impact resistance of masonry walls. He has acted as a reviewer of journal papers, grant applications and engineering software, has served on the scientific committees of major international conferences and, in 2000, became a member of the EPSRC peer review college.

Bill Harvey began his career as a bridge builder, and moved into the academic world in 1977. He spent eighteen years at the University of Dundee where he became director of the Wolfson Bridge Research Unit, and Head of Department. His main research interest was masonry arches. From 1995 to 2000 he was Professor of Civil Engineering at the University of Exeter. He recently established a consultancy and a software company, the latter primarily to serve as a vehicle for ARCHIE, the well known arch bridge assessment software.

Edward Maunder is a Senior Lecturer at the University of Exeter in the School of Engineering and Computer Science, and a chartered structural engineer. His main research is in the area of computational structural mechanics, and in particular the development of stress based equilibrium finite element models, visualisation techniques for stress fields, and design optimisation. The main applications for these developments concern reinforced concrete and masonry structures.

He graduated with a BA degree in Mechanical Sciences from Cambridge University in 1964, and this was followed by a DIC from Imperial College in 1965 and a PhD from London University in 1971. He spent some seven years with the Pell Frischmann Group of Consulting Engineers before returning to academia at Exeter University in 1976 in what was then the Department of Engineering Science.

He has been the author or co-author of some 65 papers in his research field, many of them presented at international conferences in Europe and North America. He was invited as a Visiting Research Professor at the University of Waterloo and Memorial University in the summers of 1990 and 1992. He has developed widespread European research collaboration in computational structural mechanics with the support of the EU, CNRS, the British Council, the Royal Society, and the Royal Academy of Engineering. He is currently a member of three International Scientific Committees for international conferences, and has acted as a reviewer for a number of international engineering journals including: International Journal for Numerical Methods in Engineering, Finite Elements in Analysis and Design, and Applied Mathematical Modelling.

He has been a member of the Association for Computational Mechanics in Engineering in the UK since its first conference in 1993, and has acted as its vice-chairman and chairman in 1997/98 and 1998/99 respectively.

Clive Melbourne is Professor of Structural Engineering in the Division of Civil and Environmental Engineering at the University of Salford. His main research is in the area of masonry arch bridge behaviour. He was awarded his BEng Honours (1968) and his PhD (1971) by the University of Sheffield. He had twelve years experience as a bridge engineer with Salford City Engineers and the Greater Manchester County Council before returning to academia at the Bolton Institute, where he ultimately became Head of the School of Civil Engineering and Building. He moved to his present post in 1995.

He is author and co-author of many publications in the field of masonry arch bridges. Most of his work has been involved with large-scale laboratory experiments and field tests for which he has received support from EPSRC, Railtrack, TRL, Marshalls and many others.

He is a Fellow of both the Institution of Structural Engineers (ISE) and the Institution of Civil Engineers (ICE) and is convenor at the Informal Study Group on Arch Bridges for the ISE and was honorary Editor for the ICE's Structures and Building Journal (1994-99).

Martin O'Gara is a graduate in Civil Engineering from the University of Ulster at Jordanstown, Belfast. After graduating in 1996 he joined David O'Connor at the University of Ulster to commence his research into the Numerical Modelling of Masonry Walls in Fire Situations.

Through his research he created a finite element model which simulated the structural behaviour of single leaf masonry walls at fire temperatures. The work was carried out in conjunction with a fire wall testing program conducted by Danny Laverty. The model was then applied to identify the influences of primary wall parameters. He is the author of a number of technical papers concerning the high temperature behaviour of masonry. In December 1999 he completed his research and was awarded his PhD the following year.

He is currently working within the structural engineering software industry developing the use of finite elements in structural design; however his research interests continue in the fire environment area with further publications in preparation.

Enrico Papa is a graduate "cum laude" in Structural Civil Engineering from Politecnico di Milano, Italy. He obtained a PhD graduation in Structural Engineering at the Politecnico of Milano in 1990, discussing a thesis on masonry damage mechanics. During the PhD, he spent a year at the "Laboratoire de Mécanique et Technologie" in Cachan (Paris). From 1990, he started his work as research associate at the Department of Structural Engineering of Politecnico of Milano, where currently he has the Associate Professor position in Structural Mechanics. His research is principally devoted to damage mechanics including: damage models for brittle materials, specially

concrete and masonry; experimental tests on brittle materials subject to sustained and cyclic loads; data acquisition by laser interferometry (ESPI technique); parameters identification of nonlinear models; computational nonlinear structural mechanics.

He is author of several publications concerned with these topics. He is a Member of the Italian Mechanics Association (AIMETA), of European Mechanics Society (EUROMECH) and of New York Academy of Sciences.

David Ponniah is presently a Senior Lecturer in the Department of Civil and Environmental Engineering, Edinburgh University. He has extensive experience both in industry (1973-1979), and at the Universities of Sheffield (1972-1973), Glasgow (1979-1984) and Edinburgh (1984-1999) in the fields of geotechnical engineering and construction management. The time in industry has encouraged research into areas of immediate interest and of benefit to practicing engineers.

Working widely in the field of geotechnical engineering, particularly in the transition from theory and research to practice. He has specialised in two areas: piling, and soil-structure interaction in arch bridges. The research in piling has included the design of a novel piling system for offshore structures, the development of equipment for testing of model piles, the planning, design and execution of research field test programmes, and the design and installation of geotechnical instrumentation. The soil-structure interaction research in masonry arch bridges was developed at the University of Edinburgh which has a strong tradition in masonry. His work and subsequent publications have been significant in the understanding of the fill (soil)-structure interaction in arch bridges. This work has involved two field bridge tests, large and small scale model tests in the laboratory, and finite and discrete element based theoretical studies. This research experience has enabled the understanding of a wide range of topics and David has over 40 publications.

Justin Robinson graduated from Edinburgh University with a first class BEng Honours degree in Civil and Environmental Engineering. He subsequently obtained a PhD from Edinburgh University in 2000, researching for his thesis "The Analysis and Assessment of Masonry Arch Bridges". The main areas researched during the PhD course were: an investigation into current masonry arch assessment methods; a series of patch and line load tests on an instrumented double span arch bridge, with corresponding finite element analysis and comparison with previous tests; various discrete element analysis programmes were also investigated for their ability to model masonry arch failure. He is the co-author of several publications in the area of masonry arch bridge analysis and assessment. Justin is about to start work with a civil/structural engineering consultants in order to gain further practical experience.

Paola Ronca is Associate Professor of Structural Analysis and Design at the Structural Engineering Department of the Politecnico of Milan, where she graduated at the Faculty of Architecture in 1971. She took a Master Degree in Civil Engineering at the University of Waterloo, Ontario, Canada in 1976, discussing a thesis on non-linear analysis of reinforced concrete arch bridges.

She is currently teaching Structural Analysis and Design for the Civil and Environmental Engineering Degree at the Politecnico of Milan and Rehabilitation of Structures at the University of Brescia, Faculty of Engineering.

Her current research interests range from numerical modelling of old-damaged masonry structures, in particular arches and vaults in seismic areas, to laboratory setting up and calibration for *in-situ* tests, for both masonry and timber structures.

She is author or co-author of more than seventy technical reports and lecture notes and one book on structural conservation problems of ancient monuments.

She has received research grants from both the Italian Ministry of University and Scientific and Technologic Research, and the National Research Center, and consulting assignments from public and private administrations in the field of structural assessment of ancient monuments.

Alan Selby is a Reader in Civil Engineering in the School of Engineering, University of Durham. His research involves several themes related to actions on buildings, including settlements due to tunnelling in soils, ground vibrations caused by construction activities, and bell forces on bell towers. Inevitably, analysis of such problems requires computational methods to incorporate ground-structure interaction, or transient dynamic effects. Such analyses must be calibrated against *in-situ* records at every available opportunity. He was awarded his BSc (1st class, 1968) and his PhD (1972) by Bristol University. He had several years of industrial experience with Scott, Wilson, Kirkpatrick, (London) and the NE. Road Construction Unit before joining Durham University. He was chartered, MICE, in 1974.

He is co-author of a book on Tunnelling in Soils and Effects on Buildings, and has published some 80 papers, a number of which have been presented at International Conferences around the world. He has collaborated with British Steel Piling Division in seminars, and in writing a brochure on vibration and noise control.

Aris A. Sophocleous is Dr Civil Engineer and Research Collaborator at the Institute of Structural Analysis and Aseismic Research of the National Technical University of Athens. Author of scientific publications in the area of modern methods for the analysis and design of structures under static and dynamic loads. Researcher in more than 35 research projects regarding the analysis, design and redesign of structures and methods of rehabilitation-strengthening of historical masonry and monumental structures. Recent areas of work: the conservation of historical structures by applying Innovative Seismic Protection Techniques, Vibration Reduction Techniques and Structural Control. Member of research committee for the investigation of response of new masonry structures made of autoclaved aerated concrete in seismic areas. Member of the National Scientific Committee for the Eurocodes.

Costas A. Syrmakezis is Dr Civil Engineer and Professor at the National Technical University of Athens. Author - co-author of many scientific publications, textbooks, text notes, scientific books, codes and recommendations, review publications, course notes etc. Convenor of the Task Group 10 of the European Association on Earthquake

Engineering on "Preservation on Historical Monuments". Member of the Committee for the Preservation of the Acropolis of Athens monuments. Member of the Committee for the erection of the new Acropolis Museum. Participation in multilateral ERASMUS projects on the protection of historical buildings against earthquake. Invited lecturer on the topic of masonry response, at more than 50 national or international meetings (seminars, conferences, symposia, etc.). Author of two books on subjects related to the rehabilitation of historical structures. Simple participation in 11, principal investigator to 42 research projects. Responsible for more than 20 research projects of the National Technical University of Athens, on the rehabilitation of masonry structures, with the main target being the establishment of a systematic methodology for the investigation / rehabilitation of all types of historical structures, combining safety (civil engineering) requirements, with other (archeological, architectural, etc) restrictions.

John Wilson graduated from Cambridge University in 1965 with a first class B.A. Honours degree in the Mechanical Sciences Tripos. After graduating he worked as an Assistant Engineer for Scott Wilson Kirkpatrick & Partners mainly on the design of prestressed concrete pressure vessels for Dungeness B Nuclear Power Station and the Hong Kong Cross Harbour Road Tunnel. In 1968 he joined the Central Electricity Research Laboratories, Leatherhead, Surrey as a research officer where he worked mainly on the development of computer programs to analyse the dynamic behaviour of reinforced concrete chimneys and cooling towers. In 1973 he became a lecturer at the University of Durham where to date he has been teaching a variety of undergraduate degree courses in Engineering and the postgraduate Advanced Course in Engineering Geology. He has published several papers based on research of the forces exerted on church towers by bell ringing and tower vibration. His other main interest is the computer simulation of rockfall.

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