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Preface

In this special issue of the European Journal of Applied Mathematics we celebrate the 75th birthday of its founding editor, Professor John Ockendon.

John started his research career with his D.Phil., awarded in 1965, working with Alan Tayler at the University of Oxford. John's background was in fluid mechanics, covering a wide range of topics, including, lubrication flows, flows in porous media, hypersonic aerodynamics, sloshing phenomena, and flow separation. He soon became involved in industrial research which led, in particular, to his interest in the field of free boundary problems, an area in which he became a driving force, through papers, conferences, and particularly through the fostering of regular international meetings and personal interactions. His pioneering work in the field was particularly concentrated in diffusion-controlled moving boundary problems that arise in various applications, such as in phase change problems, elastic-contact problems and the fundamental Hele-Shaw free boundary problem. The industrial collaborations also led to mathematical studies of lens design, fibre extrusion, fluidised beds, glass manufacture and semiconductor devices, to name but a few, and to problems in scattering and wave theory, non-linear wave propagation and non-linear oscillations, as well as mechanics and heat and mass transfer. He continues to work on PDEs and asymptotics applied to new well-founded models from the real world, with a particular focus in the physical and earth sciences.

As well as being the author of over a hundred scientific papers, John is also the author or co-author of five influential books.

John's efforts towards the interaction of maths with industry were key, along with work of the late Alan Tayler and Leslie Fox, to the establishment of the Study Groups with Industry, started in Oxford in 1968. John was then the organiser of Study Groups from 1972 to 1989. He has since helped in the development of the original (Oxford) Study Group with Industry into the European Study Groups with Industry, which are now held in about ten countries. John has also been key in the founding of study groups worldwide, from Australia and the USA, through India and South Africa, to Turkey and China, and elsewhere.

John's maths and industry work led to the creation of OCIAM (Oxford Centre for Industrial and Applied Mathematics), with John as its first director. OCIAM still flourishes within the Mathematical Institute at the University of Oxford. He was also the driving force and founding director of OCCAM (Oxford Centre for Collaborative Applied Mathematics).

Another major commitment of John Ockendon's has been to the Smith Institute for Applied Mathematics and System Engineering whose primary objective is to foster and coordinate mathematics-in-industry around the UK and, more recently, in Europe. This

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became a Faraday Partnership in 1999 and then a Knowledge Transfer Network in 2005. This has pioneered the use of professional technology translators to ensure that new mathematical methodologies and insights inspired from mathematical modelling were disseminated and communicated to research scientists working on problems of genuine practical relevance.

Through all these activities, and together with his network of collaborators, postdocs and students, John has had great influence on the applications of mathematics worldwide. Even today he remains active in both helping to establish new industry/mathematics partnerships and venturing into new applications, one recent problem combining his loves of differential equations and birding.

EJAM was created out of John's belief in the value of high-quality applied mathematics in understanding the world around us as well as in provoking new developments in mathematics itself. John has been tirelessly dedicated to this vision, above all by founding EJAM. In this latter effort John was strongly supported by David Tranah from Cambridge University Press and by his inaugural editorial board, who enthusiastically launched and promoted the fledgling journal.

EJAM has flourished in the intervening quarter-century, and is now established as a publication venue for innovative applied mathematics in a wide range of areas. The contributors to this special issue are some of John's former Ph.D students, and the variety of research topics examined in the nine articles in this issue reflect only some of the diverse areas of application that John was actively involved with over his career. The contributors to this volume join the Editors in sending John their very best wishes for his significant anniversary.

From the co-editors in chief,

Sam Howison
John King
Andrew Lacey
Michael Ward

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