

Editorial

As readers will have gathered from the preface to this issue by the founding editor of ORiON, Theo Stewart, our journal has been in existence since 1985 ... therefore 2009 is the quarter centennial of ORiON. It is indeed an honour and a privilege for me to sign off this celebratory, special issue of ORiON, the second issue of its twenty-fifth volume, which contains five invited papers (subjected to the normal ORiON practice of double-blind peer review) by highly esteemed authors in the field of operations research.

At the 25th anniversary of ORiON it is fitting to look back at the advances in OR during the period 1985–2009 in which ORiON has been in existence. In the first paper of this issue, titled *Recent developments in operations research: A personal perspective*, Hans Ittmann (Executive Director of the CSIR Built Environment Research Domain and Fellow of ORSSA) recalls recent trends and development in the international OR arena. His message is two-fold:

- that very few entirely new classes of techniques or tools have been developed during the last twenty five years — *i.e.* the basic tools and main classes of OR techniques are still roughly what they were twenty five years ago, although having undergone vast developments and extensions, and
- that OR practice has extended significantly into almost all industries as well as all realms of human activity.

It is almost impossible to highlight all OR developments over the last quarter of a century in any sort of comprehensive manner, and the author does not attempt to do this. Instead, Hans endeavours to provide readers with a reflection on those areas of operational research advances since the mid-1980s that have been most interesting to him and which may be of particular interest to South African readers. The article makes for very interesting and illuminating reading, while also serving as an excellent bibliographic introduction to would-be practitioners over a wide variety of relevant OR topics.

It is often remarked that there is no substitute for experience, and few practitioners in South Africa have more operational research experience than Paul Fatti (Emeritus Professor of Statistics and Actuarial Science at the University of the Witwatersrand, Fellow of ORSSA and former Editor-in-Chief of *ORiON*). In the second paper, titled *The role of statistics in operations research: Some personal reflections*, Paul shares some of his vast experience of practicing OR over many years. His main thesis is that statistics has a very important role to play in OR, yet many standard texts relegate chapters on statistics and modelling under uncertainty to a subordinate position behind, for example, chapters on deterministic optimisation techniques (such as linear programming and goal programming). He argues very eloquently that statistics and statistical thinking are essential for an OR practitioner who, after all, operates in the real, uncertain world. Using many examples from his own experience, he demonstrates that statistics is very useful, even essential, when tackling real-world OR problems. Many of the examples cited in the paper have not been published before and will hopefully be of interest in themselves, as well as illustrations of the points the author wishes to make.

In its most basic form the *vehicle routing problem* (VRP) asks for a set of closed routes (starting out from a depot) for a given fleet of vehicles with known capacities so as to satisfy the demand of a given set of customers at known locations subject to the constraints that no vehicle's capacity is exceeded and the total trip length does not exceed some specified value. In 1964 Clarke and Wright [1] developed a heuristic solution method for solving the VRP approximately, which became known as the *savings method* — this was the first algorithm that became widely used when attempting to solve VRPs and many modern heuristics for variations on the basic VRP are based on the savings method. The third paper, by Graham Rand (former Managing Editor of *International Transactions in Operational Research*) titled *The life and times of the Savings Method for VRPs*, contains a historical background to the development of the savings method and subsequent variations to the basic savings formula for VRPs. The role that the savings method has played in the investigation of VRPs with various additional constraints (such as the incorporation of time windows, backhauls, pickups, stochastic demand and stochastic travel times) is also described. The author goes on to report some interesting examples of practical applications of the savings method and to comment on the use of the savings method in commercial routing packages.

In the penultimate paper of this issue, titled *A research view of supply chain management: Developments and topics for exploration*, James Stock (Frank Harvey Endowed Professor of Marketing at the University of South Florida, author of various advanced university textbooks and Editor of the *Journal of Business Logistics*) reviews advances in the understanding of *supply chain management* (SCM) since its inception in the early-1980s. However, he reveals that there are still some basic issues concerning the precise definition of SCM that remain unresolved. Much of the research that has been conducted on SCM since the 1980s takes one or more of three perspectives, namely development of methods and techniques to study SCM and its components/processes, developing solutions to specific supply chain-related problems or challenges, or measuring the results or outcomes of supply chain strategies and tactics. Each of these perspectives is briefly examined in the paper, with selected examples from the literature cited to illustrate the type of research that has been conducted. Some potential areas of potential research exploration, such as the development of new theory, and SCM processes and functions, are also presented.

In the final paper of this issue, titled *Pedagogy in operations research: Where has the discipline been, where is it now, and where should it go?*, Jim Cochran (Editor-in-Chief of *INFORMS Transactions on Education*), reviews the history of operations research pedagogy and the progress the discipline has made in improving the quality of education it provides to university students since its recognized inception during World War II. Recent and current trends in operations research pedagogy are examined, and the paper also contains a wealth of useful information on pedagogy-related resources and ongoing activities and initiatives in operations research pedagogy. Upon reading the paper one cannot but experience a passionate and invigorating call for personal renewal of approach and greater involvement on the part of OR educators. The paper also holds up a mirror to OR teachers, enabling them to assess the efficiency of their own OR education efforts, and aiding them in improving their teaching efficiency by documenting a variety of resources and initiatives available to OR educators.

I would like to thank the five authors who have shared their invaluable views on various aspects of the current state and health of operations research with readers of Volume 25(2) of ORiON. My sincere thanks also go to the eleven anonymous referees who have generously given of their time to evaluate the papers in this issue timeously and in a very professional manner; their excellent work has led to substantial improvements in the quality of papers. Suggestions and comments on publications in ORiON, in the form of letters to the editor, are welcome and may be published in future issues of the journal.

My sincere thanks go to Martin Kidd, editorial assistant, who assumes much of the administrative duties involved in managing the submission and refereeing processes of manuscripts. I would also like to thank the business manager, Stephan Visagie, and his typesetting assistant, Lieschen Venter, for their high standards and considerable patience during the process of typesetting manuscripts in L^AT_EX, and for overseeing the time-consuming publication process of this issue.

Finally, let me wish ORiON a happy twenty-fifth birthday — may there be many more!

Jan van Vuuren (Editor-in-Chief)
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References

- [1] CLARKE G & WRIGHT JW, 1964, *Scheduling of vehicles from a central depot to a number of delivery points*, Operations Research, **12**(4), pp. 568–581.