TWENTIETH CONFERENCE ON THE MATHEMATICS OF OPERATIONS RESEARCH

&

SIXTH INTERNATIONAL WORKSHOP LANDELIJK NETWERK MATHEMATISCHE BESLISKUNDE

CONFERENCE CENTER 'DE BLIJE WERELT'
LUNTEREN, THE NETHERLANDS

JANUARY 10-12, 1995

Organized by
CWI (Centrum voor Wiskunde en Informatica)
LNMB (Landelijk Netwerk Mathematische Besliskunde)

TWENTIETH CONFERENCE ON THE MATHEMATICS OF OPERATIONS RESEARCH & SIXTH INTERNATIONAL WORKSHOP LANDELIJK NETWERK MATHEMATISCHE BESLISKUNDE

January 10–12, 1995, Lunteren, The Netherlands

AIM AND SCOPE

The aim of the meeting is to promote research activities and cooperation between senior and junior researchers in the mathematics of operations research in the Netherlands. The program offers high quality research and applications and should appeal to both academic researchers and to management consultants in trade and industry. For the second time a special mini-symposium on operations research in practice is organized, for which special invitations have been send out to management consultants.

The program should give ample opportunity for informal discussions. The conference center is located in the scenic surroundings of Lunteren, in the center of the Netherlands.

CONFERENCE PLAN

- An important part of the conference consists of three minicourses, each consisting of three lectures, in which prominent experts from abroad (A. Federgruen, M.J. Sobel and S.W. Wallace) will present introductions to their field of research.
- A second component of the conference involves six lectures by international specialists (S. Asmussen, W.J. Cook and G. Cornuéjols) about new developments in their area of expertise.
- On Wednesday afternoon there will be the mini-symposium: *Management for Distribution and Vehicle-Routing* consisting of four lectures by R. Dekker, R. van der Ham, A. Federgruen and J. Paixao.
- On Tuesday and Thursday there will be presentations by Ph.D. students (aio's, oio's and twaio's).
- Wednesday evening, after the mini-symposium, there will be an informal drink and the conference dinner.

PROGRAM

TUESDAY JANUARY 10, 1995

10.15	*Registration*
10.45	Opening
11.00–11.45	Awi Federgruen: *Mini-course* Topics in inventory theory I
12.00–12.45	Awi Federgruen: *Mini-course* Topics in inventory theory II
12.45	*Lunch*
15.00–16.00	Parallel sessions aio's/oio's/twaio's
16.15–17.00	Gérard Cornuéjols (1): Mixed 0,1 programming
17.15–18.00	William Cook (1): Computational aspects of combinatorial optimization
18.30	*Dinner*
20.15	*Ledenvergadering* Landelijk Netwerk Mathematische Beslis-kunde

WEDNESDAY JANUARY 11, 1995

9.00– 9.45	Stein Wallace: *Mini-course* An introduction to stochastic programming I
10.00–10.45	Stein Wallace: *Mini-course* An introduction to stochastic programming II
11.00–11.45	Matthew Sobel: *Mini-course* Structured optimal policies in stochastic models I
12.00–12.45	Matthew Sobel: *Mini-course* Structured optimal policies in stochastic models II
12.45	*Lunch*
13.45–14.30	*Business Meeting* aio's, oio's and twaio's

14.45–18.00	*Mini-symposium* MANAGEMENT FOR DISTRIBUTION AND VEHICLE-ROUTING
15.00–15.45	Awi Federgruen: Vendor managed replenishment (= *Mini-course* Topics in inventory theory III)
16.00–16.45	José Paixao: A decision support system for vehicle and crew scheduling
17.00–17.30	Rommert Dekker: Scheduling automatic guided vehicles at a container terminal I
17.30–18.00	Ruud van der Ham: Scheduling automatic guided vehicles at a container terminal II

18.00	*Informal Drink*
19.00	*Conference Dinner*

THURSDAY JANUARY 12, 1995

9.00– 9.45	Soren Asmussen (1): Renewal theory for phase-type distributions
10.00–10.45	Gérard Cornuéjols (2): Balanced matrices
11.00–11.45	Stein Wallace: *Mini-course* An introduction to stochastic programming III
12.00–12.45	Matthew Sobel: *Mini-course* Structured optimal policies in stochastic models III
12.45	*Lunch*
14.15–15.15	Parallel sessions aio's/oio's/twaio's
15.30–16.15	Soren Asmussen (2): Operator calculus for matrix-exponential distributions, with applications to inventory models
16.30–17.15	William Cook (2): Branch-width and the travelling salesman problem
17.15	Closing
17.45	*Dinner*

SPEAKERS

SOREN ASMUSSEN (Institute of electronic systems, Aalborg University, Aalborg, Denmark) is a prominent researcher in applied probability. After his Ph.D. in 1977 at the University of Copenhagen, he had various positions at universities in Denmark. Since 1987 he has a position as research professor at Aalborg University. He has written 65 research articles, mainly in branching processes, insurance risk, queueing theory and simulation of stochastic processes. He is the author of two books (*Branching Processes*, Birkhauser 1983 (with H. Hering) and *Applied Probability and Queues*, Wiley, 1987). A new book on Ruin Probabilities is in preparation.

WILLIAM J. COOK (Research Institute for Discrete Mathematics, University of Bonn, Germany) is a leading expert in the computational aspects of combinatorial optimization problems. He and his coworkers solved very large traveling salesman problems, which did not only attract attention of the scientific community but also of the international press (including the *New York Times* and *de Volkskrant*). After his Ph.D. in 1983 at the University of Waterloo, he was Alexander von Humboldt Research Fellow at the Institute for Operations Research of the Univer-

sity of Bonn. Moreover, he held positions at various universities in the U.S. and again in Bonn. For the last six years he was member of the Combinatorics and Optimization Research Group of Bell Communications Research. Presently, he is John von Neumann Professor at the Research Institute for Discrete Mathematics of the University of Bonn.

GÉRARD CORNUÉJOLS (Graduate School of Industrial Administration and Mathematics Department, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA) is a well-known expert in mathematical programming. His research interests lie in combinatorial optimization, integer programming, the analysis of algorithms, operations research and graph theory. He published about forty publications in international journals. Among his many results is the derivation (togeter with his coworkers) of a polynomial time algorithm for recognizing balanced matrices, thus solving a long standing prominent open problem. He is area editor for *Mathematics of Operations Research* in the area of Discrete Optimization. In 1977, Gérard Cornuéjols was a co-recipient of the Lanchester prize for work on location theory.

ROMMERT DEKKER (Erasmus University, Rotterdam) received his Ph.D. in Mathematics from the Leiden University in 1985. From 1985 until 1991 he worked with Shell in Amsterdam and The Hague. Since 1992 he has a chair as professor of Operations Research at the Erasmus University in Rotterdam. His research interests are maintenance, logistics, inventory and distribution management, and stochastic dynamic programming.

AWI FEDERGRUEN (Columbia University, New York, USA) is Charles E. Exley Professor of Management at the Graduate School of Business of the Columbia University. After his Ph.D. in 1978 at the University of Amsterdam he went to the United States. He has developed computerized logistic planning models and strategies for numerous U.S. and foreign corporations and government institutions. His teaching and research interests are: production, inventory, capacity and transportation planning. Professor Federgruen is Department Editor of Management Science and Associate Editor of Operations Research. He has written more than 80 articles in premier journals, and authored a book and contributed chapters in several important survey textbooks on dynamic

programming.

RUUD VAN DER HAM (ECT, Rotterdam) is Manager of Operations Research at Europe Combined Terminals (ECT) B.V. He received his Masters degree in Mathematical Engineering, with a specialization in Operations Research, at the Delft University of Technology. As project manager he was responsible for various projects in logistics, control systems, information systems, implementation of technical installations, container flows, vessel operations and terminal operations. In the recent Delta/Sealand terminal project he was in charge with the the implementation of various simulation studies.

JOSÉ PAIXAO (University of Lisbon) is full professor in Operations Research and Dean of Science at the Faculty of Sciences of the University of Lisbon. He received his Ph.D. from the University of London (Imperial College of Science and Technology). His current areas of interest are: practical applications of combinatorial optimization (vehicle and crew scheduling, location and routing, network design) and algorithms for the set covering problem.

MATTHEW J. SOBEL (State University of New York at Stony Brook, Stony Brook, New York, USA) is Dean and Leading Professor of the W.A. Harriman School for Management and Policy. He is also professor in the Department of Applied Mathematics and Statistics, and in the Institute for Decision Sciences. His research areas are: inventory and production, queues, Markov decision processes, sequential games, economics of industrial organization, water resources and environmental management. He has written (with D.P. Heyman) two volumes on Stochastic Models in Operations Research. This work was runner-up for the Lanchester Price.

STEIN W. WALLACE is presently a professor in Operations Research in the Department of Managerial Economics and Operations Research of The Norwegian Institute of Technology at the University of Trondheim in Norway. Before this he was affiliated with the Chr. Michelsen Institute in Bergen and Haugesund Maritime College. Professor Wallace is an expert in stochastic programming (mostly algorithms and modelling) on the theoretical side and the use of OR in fisheries management and

petroleum economics on the applied side. Recently he also became interested in telecommunication problems. At present, he is the chair of The Committee on Stochastic Programming (COSP) in the Mathematical Programming Society (MPS). Moreover, he founded the Nordic Section of MPS in 1989, and chaired it until this year. Together with Peter Kall, he wrote a book titled *Stochastic Programming* (Wiley & Sons, 1994), the first textbook in stochastic programming.

Parallel sessions

The aio's, oio's and twaio's of the Landelijk Netwerk Mathematische Besliskunde will receive a separate invitation from the LNMB to present a paper at the meeting. For each contributed paper by an aio, oio or twaio a senior member of the society will be invited to act as discussant.

Location

Conference Center 'De Blije Werelt', Westhofflaan 2, Lunteren, The Netherlands. Telephone +31-8388-4641. Lunteren can be reached by train from Amersfoort and from Ede-Wageningen. The walk from the railway station in Lunteren to 'De Blije Werelt' takes about 15 minutes. For a taxi, call 08388-4555. For directions by car see the maps on the back cover.

Organization

The conference is organized by CWI (Centrum voor Wiskunde en Informatica) in Amsterdam and the Landelijk Netwerk Mathematische Besliskunde under the auspices of the Dutch Research Community in the Mathematics of Operations Research and System Theory, with financial support of the Stichting Mathematisch Centrum.

Registration

One can register until December 23, 1994 by sending in the registration form and transfering the fees. Participants can register for the entire meeting as well as for partial arrangements.

The various fees, mailing-address and bank account can be found on the registration form. The full arrangement includes lodging and meals from January 10 before lunch until January 12 **before** dinner. Participants who also wish to attend dinner on Thursday evening, immediately after the meeting, should indicate this on the registration form.

It is possible, against reduced rates, to share a room; in that case a room mate should be indicated on the registration form.

Aio's, oio's and twaio's of the Landelijk Netwerk Mathematische Besliskunde who *attend the entire meeting* are entitled to a reduction of Dfl. 100,–.

The fee for the mini-symposium is Dfl. 250,–, but is waved for all participants who take a full or partial arrangement for the meeting.

Registrations will be made only after the registration form and the conference fee have been received by the conference organization. No invoices wil be send. Because of the short time period between receipt of the fees and the meeting, we will not send confirmations either. In case you wish to check the receipt of your registration, contact Mrs. Lieke Schultze (lieke@cwi.nl, +31-20-5924189).

Late registration is possible but not encouraged. In case of late registration accomodation cannot be garanteed.

INFORMATION

For further information contact the

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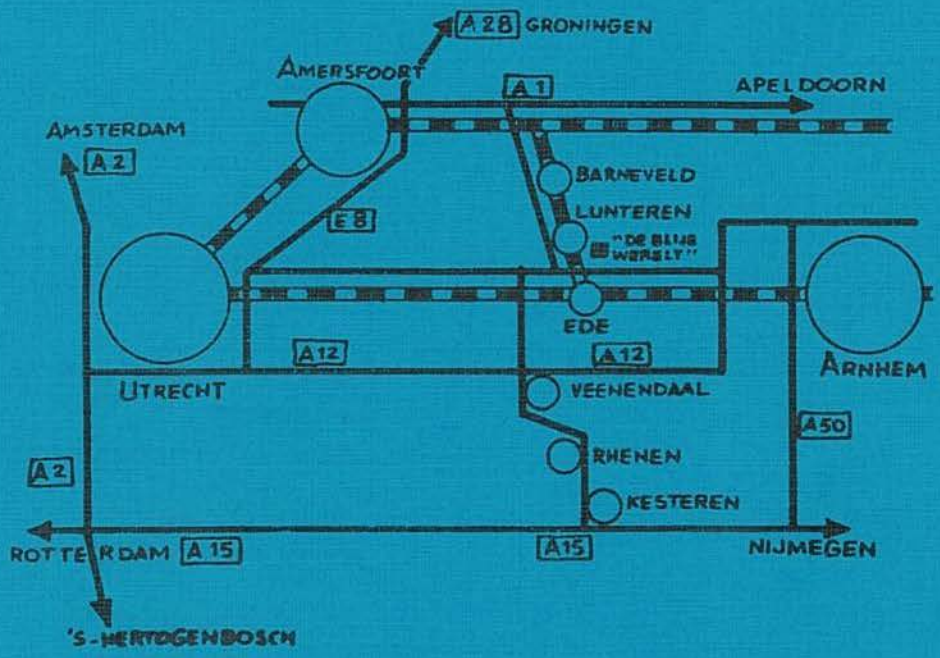
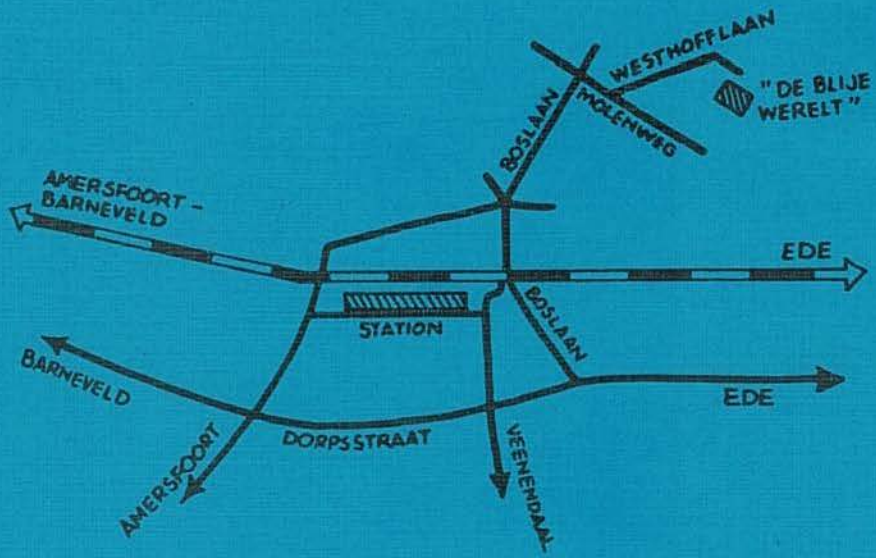


The location of Lunteren



The location of 'De Blije Werelt'