

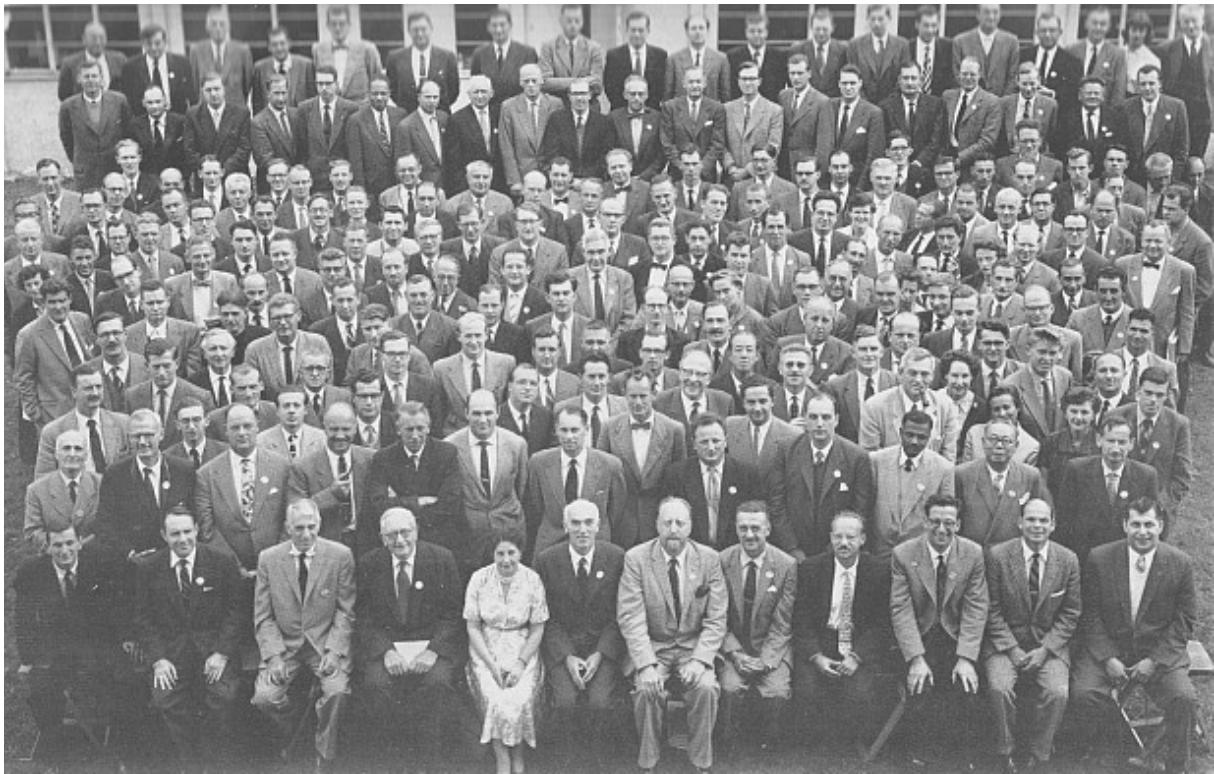
The First International Conference on Operations Research in Oxford 1957 Issues, Gender, Impact

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I am pleased to be able to speak here on the 50th anniversary of Euro. The first IFORS conference took place in 1960 in Aix-en-Provence, France. It had a precursor conference in 1957 in Oxford. This was the first international conference on Operations Research ever. I want to report on it. Fortunately, there is a very carefully edited book about this conference in the form of the conference proceedings. This book is lavishly produced using hot metal type, rather than cheap phototypesetting. The conference took place in September 1957, and by the end of that year, the proceedings were published by English Universities Press in London as a very carefully edited hardcover. The qualified publication within four months indicates a large staff in the background and generous funding for the project, presumably from the USA. In addition to the specialist presentations, the book also contains reports on panel discussions, for example, on OR teaching and Training. It also contains numerous reports on the state of operations research in various countries, primarily in Europe. There is also a list of the more than 200 participants, arranged by country of origin. The volume starts with a group photo of 200 attendees with an index of the participants.



Here, in the front row, we see George Danzig, who invented linear programming; Sir Charles Goodeve of the British Steel Industry Association and president of the British Society for Operational Research; and Philip Morse, president of the American Society for Operations Research, who presumably raised the funds for the conference through his Pentagon contacts.

Monday, September 2, was reserved for overview presentations by Ackoff, Goodeve, and Morse.

Tuesday, September 3, and Wednesday, September 4, featured a series of specialized presentations on specific topics in operations research, such as warehousing, traffic problems, statistical quality control, marketing, and queuing problems. The debate in the United Kingdom in the 1950s about whether OR was truly new or merely a combination of known methods, which John Krige portrays in his book (2006) *Postwar Reconstruction of Science in Europe*, is not mentioned in the proceedings volume.

I will highlight Stafford Beer's lecture on the mechanical Simulation of stochastic flows at British steelworks. Although he strictly speaking offered no evidence to support his thesis, Beer – who had studied psychology a little – argued that management had reservations about results calculated with digital computers based on mathematical models and insisted on their own experience. With his mechanical analog computer, Beer wanted to vividly demonstrate to management how stochastic processes occur in steel production. You can see the mechanical analog computer in the illustration here. For context: Numerous other contributions to the Oxford conference also refer to analog computers. Beer became known with the book *Cybernetics and Management*, where he leveraged British Steel's prestige for his publication.

The country reports in the Oxford proceedings volume are interesting. The Polish representatives reported, among other things, on the planning of locations for retail stores to supply the population – a problem of the communist centralized economy. Francesco Brambilla demonstrates the high level of OR in Italy. He headed the Centro per la Ricerca Operativa in Milan, which was supported by the Olivetti company. The center had analog and digital computers and offered OR courses. The Italian

military had OR training. The Federation of Italian Industries also operated an OR unit and organized the first OR conference in Italy was held in Turin in 1956, with a volume of proceedings published in 1957.¹

There was a major country report for the United Kingdom. I'll focus on the transport sector. The two transport monopolies, London Transport and British Railways, had implemented a multitude of special regulations that made it impossible for management to compare different units. In the freight sector, for example, there were **several million** different tariffs. The use of simple statistical methods made it possible to eliminate these special regulations. The shortest distances $X(i,k)$ in miles between different stations were calculated using an electronic computer. In the 1920s, the German Reichsbahn calculated these distances for the German Reich and presented them in the graph-theoretical form of trees of shortest paths, which it published in its freight timetable 1930:



The methods used for this calculation are still unknown.

The significant emphasis placed on OR training in the proceedings volume is interesting. For example, the OR Group of Stafford Beer reported on OR courses for employees of British Steel. OR courses were also included in the country report for Italy. In West Germany, the offering of OR courses was also a big business on the consulting market. The country reports for Italy and the United Kingdom report on many applications of OR in large industrial companies. However, specific information is missing, such as: Method X led to savings of \$100,000. Press releases of this kind also remained unknown.

Gender

¹ Convegno La ricerca operativa <1956 Torino>, Editore: Unione industriale di Torino, 1957

Looking at the photo of the participants at the Oxford conference, it is striking that only a few participants are female. At position 186, we find Dr. Anna Restelli from the Center for Operations Research at the Bocconi University of Economics in Milan. However, the Center for Operations Research is headed by the male Professor Francesco Brambilla. We do not have any female OR researchers with the rank of professor on the list of participants. The situation has changed since 1957. Here I have an overview of female OR researchers with the rank of professor, by the years they were appointed to the position. Also on the list is Anita Schöbel, the president of Euro. The first female OR researcher with the rank of professor in history was Hannelore Fischer, who was appointed Professor of Operations Research in East Germany in 1968. I have created an entry about Hannelore Fischer in Wikipedia. Grazia Speranza followed in 1983 at the University of Milan as the second female OR professor.

Name	Prenome	Professor since	University	Country
Fischer	Hannelore	1968	Economic Research Institute	East Germany
Land	Ailsa	1980	London School of Economics	Great Britain
Speranza	Grazia	1983	University Milan	Italy
Werners	Brigitte	1992	University Bochum	Germany
Le Thi Hoai An	Le Thi Hoai An	1998	National Institute for Applied Sciences, Rouen	France
Schöbel	Anita	2004	University Göttingen	Germany
Pagel	Christina	2005	Clinical Operational Research Unit (CORU) at University College London	Great Britain
Ljubić	Ivana	2015	ESSEC Business School of Paris	France
Shen	Liji	2015	WHU – Otto Beisheim School of Management, Vallendar	Germany

Impact

The Oxford conference was considered a great success, but national OR organizations generally did not exist in individual countries. They existed only in the USA and the UK. Within a short time, national OR organizations were founded in numerous countries. The national OR organizations of the USA, Great Britain and France founded the umbrella organization IFORS in 1959, following the highly

acclaimed "World Computer Congress" in Paris in June 1959 with 1,700 participants, at which the umbrella organization International Federation of Information Processing (IFIP) was founded as a UN sub-organization in June 1959. The first IFORS conference took place in 1960 in Aix-en-Provence, France, with ten national OR organizations and 350 participants. However, on its website, IFORS lists the Oxford conference as the first IFORS conference.

The 1957 OR conference in Oxford had already sparked considerable activity in West Germany. At the University of Darmstadt, with its strong Institute for Applied Mathematics, the Operations Research Working Group (AKOR) was founded in 1957, which served as a platform for registering participants from Germany for the conference in Oxford. Seven participants traveled to Oxford from West Germany. Similarly, the founding of IFORS sparked a flurry of activity in West Germany, Austria, and Switzerland over who would represent the German-speaking region at the IFORS conference in Aix. Austria was unable to decide; in Switzerland, Hans Künzi founded the Swiss Association for Operations Research specifically for representation in Aix in 1960, and the West German OR working group AKOR was able to send 16 participants to Aix. The impact of Oxford was an increased institutionalization of OR in Switzerland. In 1958, the mathematician Hans Künzi was awarded a chair for OR at the University of Zurich and, in 1965, a second chair at the Zurich Institute of Technology. These two chairs for one person demonstrate the public's exaggerated expectations of OR.

The impact also includes the question of how high the travel costs were and who paid the travel expenses for the conference participants. The conference in Oxford featured 58 participants from the USA, many from Air Force institutions. It is known that in 1957, a one-way transatlantic flight from the USA to Great Britain cost 5,000 pounds in today's prices. The United States presumably covered the flight costs for the 58 participants through a fund for the promotion of science. In his book (2006) *Postwar Reconstruction of Science in Europe*, John Krige already points out the high influence of the USA, which was exerted as soft power on the shaping of European science through conferences and summer schools.

Interestingly, IFORS was, as EURO, explicitly anti-communist, as only countries from the Western bloc became members. This distinguishes IFORS from the International Federation of Information Processing, founded at the same time, which, as a UN organization, also included members from the Eastern bloc. Its vice president was a Russian. IFORS's anti-communist orientation was already evident at the conference in Oxford, to which only two members from the Eastern bloc were invited. They were the Polish participants, Professor Jan Oderfeld and Professor Rajski, both from the Institute of Mathematics at the University of Warsaw.

At the end I may focus your attention on my publication on the history of Operations Research:

Mathematical Management. Operations Research in the United States and Western Europe, 1945 – 1990, in: *Management Review – Socio-Economic Studies*, vol. 34 (2023), issue 1, pp. 69–91.