

THE EARLY HISTORY OF INTERNATIONAL HEAT TRANSFER CONFERENCES

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International Heat Transfer Conferences started as an International Discussion on Heat Transfer in London, 1951, organized binationally by the British Institute of Mechanical Engineers and the American Society of Mechanical Engineers. It was held a second time at Boulder, Colorado in 1961. At the Third Conference at Chicago, Illinois a larger organization was created, the Assembly of International Heat Transfer Conferences, which includes by now representatives from 13 countries. Eight more International Heat Transfer Conferences were held, including the present one, with an ever increasing international participation.

This development was closely interwoven with other projects on international cooperation in heat transfer research. This is also discussed briefly.

When I was asked to discuss the early history of the international heat transfer conferences, I began digging back into my memory and into old files, records, and proceedings as far as they were available to me and I realized that these conferences were closely interwoven with other events at international cooperation. I then decided that I should present the history of the international heat transfer conferences in the framework of the general international cooperation in this field, a development of which the heat transfer community can be proud.

The first international heat transfer conference was organized on a bi-national basis by the British Institute of Mechanical Engineers and the American Society of Mechanical Engineers as General Discussion on Heat Transfer in London, England in the year of 1951. O. A. Saunders was the guiding spirit and the chairman of the conference and A. C. Mueller, who was at the time secretary of the Heat Transfer Division, which has been formed in 1938 within the American Society of Mechanical Engineers; was chairman on this side of the Atlantic. The stress during this conference was on discussion and a follow-up discussion was held at the ASME Annual Meeting at Atlantic City. It was planned to hold such meetings every tenth year.

Other international developments occurred, however, in the interim period 1951-1961. One day in 1958 I received a telegram with the following message:

"Congratulations, you have been elected chairman of the Honorary Editorial Advisory Board of the International Journal of Heat and Mass Transfer.

Signed
Robert Maxwell"

I found out afterwards that Maxwell, the owner of Pergamon Press at Oxford, England had invited the Rand Corporation in California and asked C. Gazley and J. P. Hartnett to serve as US-editors of a planned journal - the International Journal of Heat and Mass Transfer. Maxwell had also obtained A. J. Ede and D. B. Spalding as editors from the United Kingdom, U. Grigull from the Federal Republic of Germany, and A. V. Luikov as editor from the USSR. The journal was started in June, 1960. Figure 1 is a reproduction of

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Fig. 1: Inside cover of the first issue of the International Journal of Heat and Mass Transfer

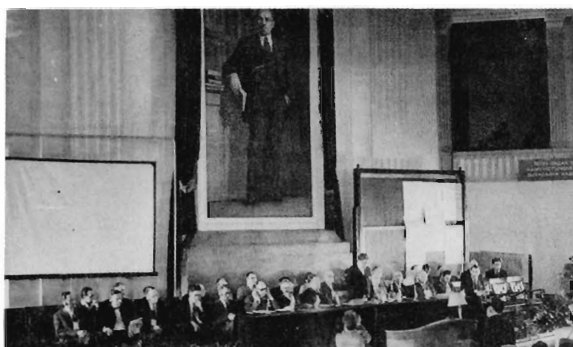


Fig. 2: Opening Session of the First All-Union Heat Transfer Conference

the inside cover of the journal. I, myself and O. A. Saunders were chairmen of the Honorary Editorial Advisory Board. Edmund A. Brun from France was added as editor in 1961, as was Takashi Sato from Japan. In 1983 a representative [B. X. Wang] from the People's Republic of China rounded out the Board of Editors. The journal developed rapidly and contributed essentially to other international cooperations between members of the heat transfer community. Its impending publication acted also as a catalyst for the establishment of the Journal of Heat Transfer within the Transactions of the ASME, a development largely due to the efforts of S. P. Kezios. The first issue of the journal appeared in February, 1959.

In June of 1961, the first All-Union Heat and Mass Transfer Conference was organized within the Soviet Union by A. V. Luikov at the Bielorussian Academy of Science in Minsk. A number of researchers were invited from western countries. Figure 2 shows S. R. De Groot from Holland, C. Gazley and J. P. Hartnett from the USA, A. J. Ede and D. B. Spalding from the United Kingdom, and U. Grigull from the Federal Republic of Germany sitting in the left side of the front row during the opening session of the conference.

The Second International Heat Transfer Conference was held in Boulder, Colorado in August of 1961. Conference Chairman was now A. C. Mueller and O. A. Saunders was Chairman for the British participation. The distribution of papers presented at the conference offered by the various countries is listed in

Table 1

The 1961-62 International Heat Transfer Conference
Boulder, Colorado, USA

Conference chairman:	A. C. Mueller	
British chairman:	O. A. Saunders	
Papers:	USA	60
	UK	40
	Japan	10
	USSR	5
	Canada	3
	Sweden	3
	Switzerland	1
	Italy	1
	Australia	1
	Yugoslavia	1

A special committee, the National Heat Transfer Coordinating Committee with representatives from the Heat Transfer Divisions of ASME and AIChE had been formed to organize yearly heat transfer conferences in the USA. The same committee took care of the organization of the Boulder Conference. A follow-up to this conference was held in London, England in January of 1962.

It was planned to shorten the intervals between such conferences to five years. During the intervening years voices were raised within the National Heat Transfer Conferences Coordinating Committee that the international conferences should be organized on a truly international basis by securing the participation of other countries besides the United States and the United Kingdom in the organization. At the meeting of the Coordinating Committee in 1963, I was asked to organize and chair a meeting during the 1966 International Conference to act on this point.

The chairmen and the distribution of papers for the Third International Heat Transfer Conference which was held at Chicago under the sponsorship of AIChE in 1966 can be seen in the following table.

Table 2

Third International Heat Transfer Conference
Chicago, Illinois, USA, 1966

Chairmen:	J. W. Westwater	
	O. A. Saunders	
Papers:	USA	75
	UK	37
	USSR	23
	Japan	12
	Canada	7
	France	5
	South Africa	3
	Romania	2
	Yugoslavia	2
	New Zealand	2
	Netherlands	2

Australia, Czechoslovakia, Federal Republic of Germany (FRG), Italy, Pakistan, Sweden provided 1 paper each

I invited during this conference participants from countries which contributed strongly to research in heat transfer to form an ad hoc committee to discuss the international organization of such conferences. It was decided to form an Assembly of International Heat Transfer Conferences from representatives of organizations in these countries for the purpose of organizing international heat transfer conferences in four year intervals. E. Brun and U. Grigull also offered to organize the next international conference at Paris. The report of J. W. Westwater to the AIChE and ASME on the Chicago Conference contains the following recommendation:

"International Heat Transfer Conferences serve a useful purpose and would be continued. It is probable that international heat transfer conferences will be under control of the Assembly for International Heat Transfer Conferences. The National

Heat Transfer Coordinating Committee should cooperate fully. If for any reason the Assembly for International Heat Transfer Conferences is disbanded, NHCCC should unite with British Institutions to sponsor international heat transfer conferences."

It turned out that the last cautious recommendation did not have to be implemented because all of the countries which were invited participated fully in the Assembly which was constituted at its first meeting on April 3, 1967 in Paris. The participating countries and their representatives are listed in Table 3.

Table 3

First meeting of Assembly of International Heat Transfer Conferences
April 3, 1967, Paris, France

Chairman:	E.R.G. Eckert	USA
Members	T. W. Hoffman, J. T. Rogers	Canada
	U. Grigull, K. Stephan	FR Ger.
	E. A. Brun, N. Veron	France
	N. Nishiwaki, T. Mizushina	Japan
	W. B. Hall, P.M.C. Lacey	UK
	K. O. Beatty, Jr., E.R.G. Eckert	USA
	S. S. Kutateladze, A. V. Luikov	USSR

Members joining later: India, Israel, Italy, Netherlands, Yugoslavia. The Peoples' Republic of China has applied for membership.

It is also indicated that Israel and The Netherlands were accepted as members of the Assembly in 1974 and India and Italy are mentioned as new members in 1980. Yugoslavia had already joined earlier. The Assembly has the task to organize international heat transfer conferences, the responsibility for each conference is assumed by the host country and a Scientific Committee appointed by the Assembly is responsible for the technical program.

The Max Jakob Memorial Medal and Award shown in Fig. 3 was presented for the first time by the ASME Heat Transfer Division in 1961 in recognition of eminent contributions to the science and art of heat transmission. The AIChE joined in 1982 in the sponsorship of the award. The Selection Committee decided from the beginning that the award should be given to the best man in the field regardless of nationality. Table 4 listing the recipients shows this.

Table 4

MAX JAKOB MEMORIAL AWARD RECIPIENTS

1961	Ernst R.G. Eckert, USA	1974	Peter Grassmann, Switzerland
1962	Llewellyn M.K. Boelter, USA	1975	Robert G. Deissler, USA
1963	William H. McAdams, USA	1976	Ephraim M. Sparrow, USA
1964	Ernst Schmidt, Germany	1977	D. Brian Spalding, U.K.
1965	Hoyt C. Hottel, USA	1978	Niichi Nishiwaki, Japan
1966	Sir Owen A. Saunders, UK	1979	Stewart W. Churchill, USA
1967	Thomas B. Drew, USA	1980	Ralph A. Seben, USA
1968	Shiro Nukiyama, Japan	1981	C.-L. Tien, USA
1969	S. S. Kutateladze, USSR	1982	Simon Ostrach, USA
1970	Warren M. Rohsenow, USA	1983	B. T. Chao, USA
1971	James W. Westwater, USA	1984	A. Lewis London, USA
1972	Karl A. Gardner, USA		
1973	Ulrich Grigull, Germany		

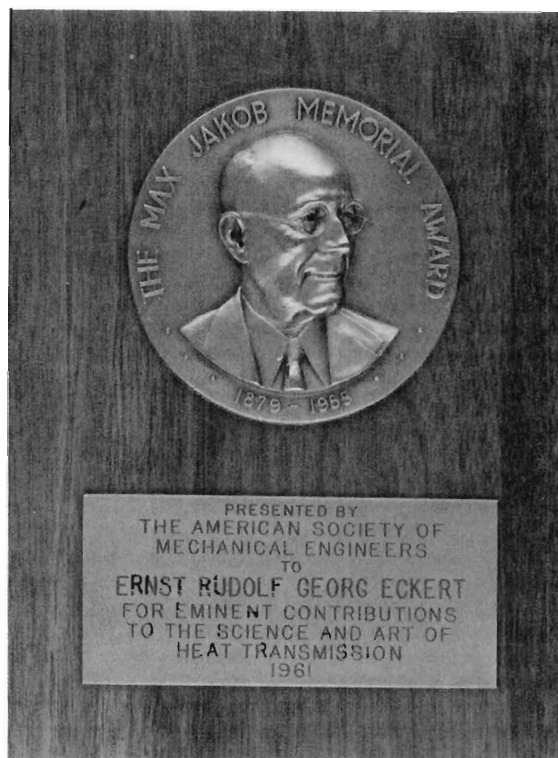


Fig. 3: Bronze plaque of Max Jakob Award

The Max Jakob Award has thus become the most prestigious international award in the field of heat transfer.

The International Centre for Heat and Mass Transfer has been organized at Belgrade, Yugoslavia through the initiative of two Yugoslavians - N. Afgan and Z. Zarić and the essential help by E. Brun and other members of the heat transfer community. The organization and the first officers of the Centre are listed in Table 5. The Centre holds annual seminars on special topics of heat and mass transfer, sometimes supplemented by a study course. It is also contributing to dissemination of up to date information by special publications.

Table 5

International Centre for Heat and Mass Transfer
Belgrade, Yugoslavia
Constitutive Meeting, September 16, 1968

Scientific Council:

President E. A. Brun, France
Vice-Presidents: E.R.G. Eckert, USA
M. S. Styrikavich, USSR
D. Velicković, Yugoslavia

Members from Austria, Belgium, Canada, Federal Republic of Germany, France, Japan, United Kingdom, United States of America, Yugoslavia.

Organization Committee:

N. Afgan, Yugoslavia
D. B. Spalding, UK
A. Fortier, France
J. P. Hartnett, USA
T. F. Irvine, USA
A. L. Leontiev, USSR
L. Napolitano, Italy

Secretary: Z. Zarić, Yugoslavia

The Fourth International Heat Transfer Conference, held in Paris-Versailles, was the first one organized under the Assembly. Table 6 shows that the international participation has increased. A steady increase occurred also at the Fifth Conference held in Tokyo, Japan, the Sixth Conference at Toronto, Canada in 1978, the Seventh Conference at Munich, Federal Republic of Germany in 1982, and at the present conference at San Francisco, USA. (Table 7).

Table 6

Fourth International Heat Transfer Conference
Paris-Versailles, France, 1970

President of Assembly: E.R.G. Eckert, USA
Conference Chairmen: E. A. Brun, France
U. Grigull, FR Germany
Secretary: E. Hahne, Fed. Rep. of Germany
Chairman, Scientific Committee: U Grigull,
Fed. Rep. of Germany

Papers:	USA	143
	USSR	65
	UK	34
	FR Germany	21
	France	20
	Japan	17
	Canada	14
	Australia	5
	Czechoslovakia	4
	Netherlands	3

Israel, Italy, Romania, Yugoslavia contributed 2 papers each.

Bulgaria, Egypt, Hungary, India, Netherlands, Poland, South Korea, Sweden contributed 1 paper each.

Table 7

Fifth International Heat Transfer Conference
Tokyo, Japan

President of Assembly: U. Grigull, FR Germany
Vice President and Conference Chairman:
N. Nishiwaki, Japan
Secretary: E. Hahne, Fed. Rep. of Germany
Chairman, Scientific Committee: T. Mizushima,
Japan

Sixth International Heat Transfer Conference
Toronto, Canada, 1978

President of Assembly: N. Nishiwaki, Japan
Vice President and Conference Chairman:
F. C. Hooper, Canada
Secretary: J. T. Rogers, Canada
Chairman, Scientific Committee: J. T. Rogers,
Canada

Seventh International Heat Transfer Conference
Munich, Germany, 1982

President of Assembly: F. C. Hooper, Canada
Vice President and Conference Chairman:
U. Grigull, Fed. Rep. of Germany
Secretary: J. Straub, Fed. Rep. of Germany
Chairman, Scientific Committee: U. Grigull,
Fed. Rep. of Germany

Eighth International Heat Transfer Conference
San Francisco, California, USA, 1986

President of Assembly: U. Grigull, Fed. Rep.
of Germany
Vice President and Conference Chairman:
R. J. Goldstein, USA
Secretary, T. W. Simon, USA
Chairman, Scientific Committee: C. L. Tien,
USA

Future Conferences:

1990 Jerusalem, Israel
1994 USSR



Fig. 4 Alexei Vasilievich Luikov



Fig. 5: Plaque of Luikov Award

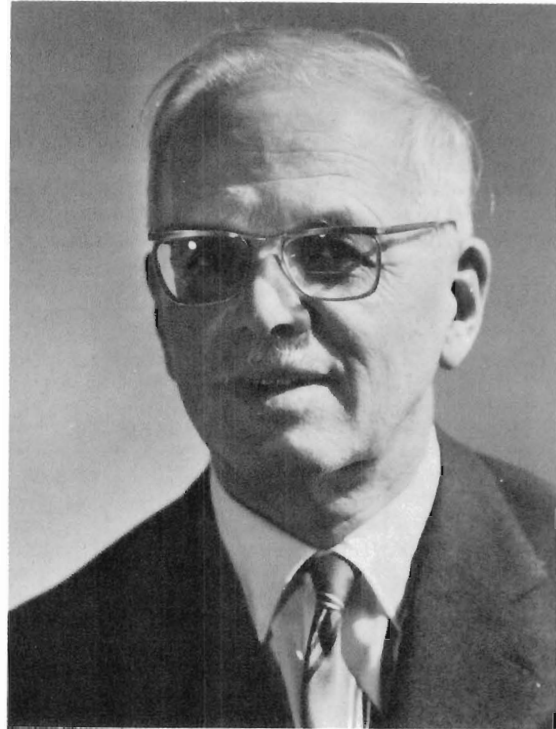


Fig. 6: Edmond A. Brun

been well recognized internationally. It has become evident during this lecture that many efforts to bring together the international community in heat transfer would not have occurred without his leadership.

I want to conclude this lecture with a short tribute to two members of our community who strongly contributed to international cooperation in heat transfer but who are not with us any more. Alexei Vasilievich Luikov died in 1974 [Fig. 4]. His many-sided significant contributions to heat and mass transfer and his pioneering studies in heat and mass migration in porous media have been acknowledged in obituaries in the various heat transfer journals. He was deeply convinced of the necessity of international cooperation in science and contributed in many ways to its organization. A Luikov Medal [Shown in Fig. 5] was established by the International Centre for Heat and Mass Transfer to recognize special contributions in the field of heat and mass transfer internationally and to honor Luikov in this way.

Edmond A. Brun [Shown in Fig. 6] passed away in 1979. Again, an eminent researcher in thermodynamics and heat transfer, whose contributions have