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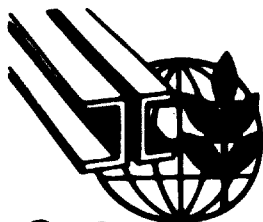
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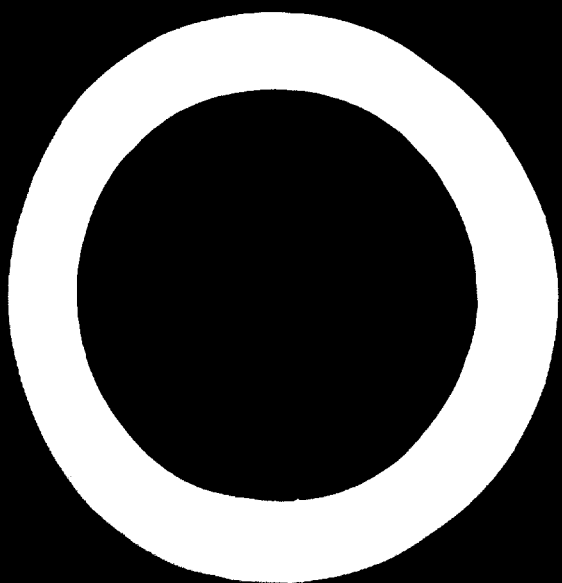
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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

**SECOND
INTERREGIONAL
IRON AND STEEL
SYMPOSIUM**

MOSCOW,

19 September - 9 October 1968



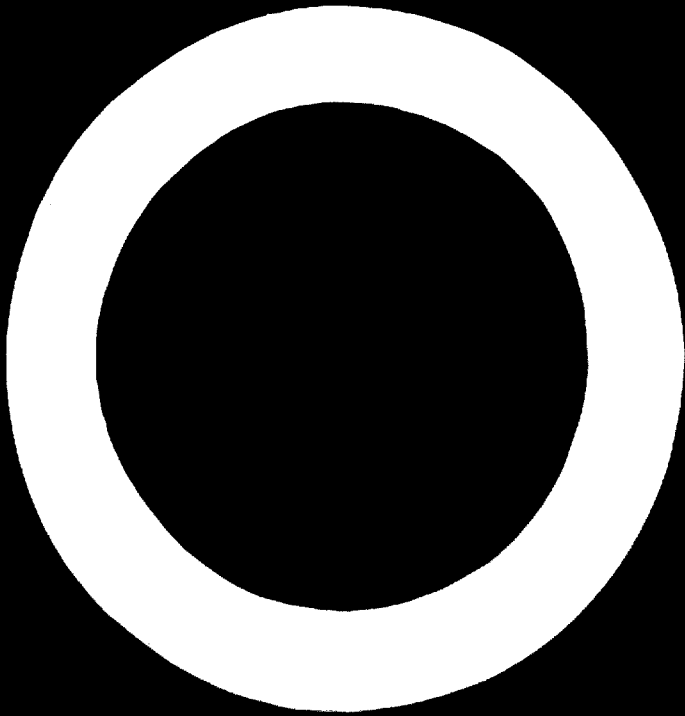
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SECRETARIAT

	<i>UNIDO</i>	<i>USSR</i>
Director:	Mr. E. E. Ward	Mr. I. N. Golikov
Technical Director:	Mr. M. A. Maurakh	Mr. N. N. Timoshenko
Secretary:	Mr. B. Crowston	—
Documentation Officer:	—	Mr. M. M. Kuleshov
Administrative Officer:	Mr. F. W. Herold/ Mrs. I. Kruck	Mr. S. M. Petrov

Location of the Symposium

**October Hall
Dom Sojuzov
Prospect Karl Marx
Moscow, Central**



SYMPOSIUM INFORMATION

Admission

Only persons designated by UNIDO and the Government of the USSR can be accepted as participants.

So far as the premises and available seating accommodation allow, the public may be admitted but will not be entitled to take part in discussions or receive documents.

Registration

Participants should report on arrival to the registration desk.

Badges

Participants are requested to wear the name badges distributed to them upon registration; in case of loss, the registration desk should be informed.

Distribution of Documents

Summaries of the papers listed in the programme will be distributed one month prior to the Symposium. Copies of the full text of the papers presented will be available at the Symposium.

Seating

There are no formal seating arrangements but it is desirable that, during each meeting, the authors whose papers are to be read should sit in the first row.

Languages and Interpretation

Speakers must use English, French, Russian or Spanish. Simultaneous interpretation into the other three languages will be provided.

Presentation of Papers

The Administrative Officer should be informed on any services required, and drawings and slides, etc. should be submitted in good time before each session.

Participants reading papers are asked to attend a briefing in the office of the Technical Director a quarter of an hour before the session at which the paper is to be read.

Participants should speak slowly and distinctly in order to facilitate interpretation, and the time allowed for each paper should be respected.

Discussion

Speakers should not start until they have been invited to do so by the Discussion Leader and their microphone has been switched on; name and country should be announced each time.

Immediately after speaking, participants are asked to be good enough to summarize their remarks in writing on the forms distributed for this purpose. These forms, which help to guarantee the accuracy of the records, should be returned to the Administrative Officer.

Authors should, in the same way, provide summaries of their answers to questions raised on their papers.

Final Corrections

In order to speed up publication of the proceedings, the Secretary of the Symposium will be present, and any corrections, additions, figures or notes which it may be desirable to introduce in the final version of papers should be submitted to him; authors are in return asked to be kind enough to reply as soon

as possible to any points he may wish to clear up in connection with their papers. The co-sponsors cannot undertake to make changes which may be requested after the meetings have ended.

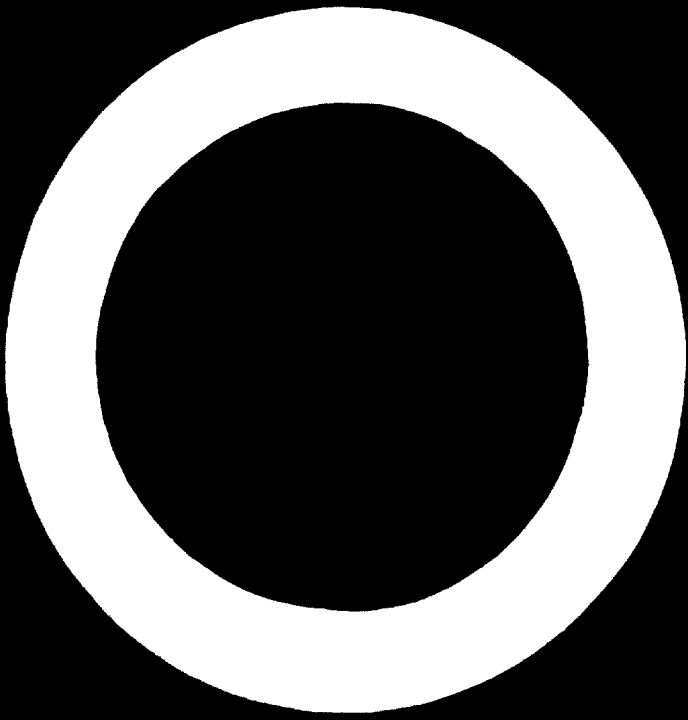
PROCEEDINGS

Publication

The proceedings will be published by UNIDO about six months after the Symposium.

Publicity

United Nations publications are given a very wide publicity. They are reviewed and advertised in scientific and technical journals, abstracted in abstracting journals, listed in national bibliographies, deposited for public reading in libraries and displayed at book fairs and scientific conferences. Catalogues and advance notices of United Nations publications are distributed widely, and may be had free on request.



GENERAL PROGRAMME

Thursday, 19 September 1968

9.00–13.00	Registration of participants
10.00–11.00	Joint meeting of experts and staff members
16.00–17.00	Opening Session
17.00–18.00	First Session, Part A

Friday, 20 September 1968

9.00–12.30	Second Session, Part A
15.00–18.00	Third Session, Part B Report of Draft Committee on Part A

Saturday, 21 September 1968

11.00–16.00	Visit to the State Exhibition
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Sunday, 22 September 1968

No official business

Monday, 23 September 1968

9.00–13.00	Fourth Session, Part B
15.00–18.00	Fifth Session, Part B Report of Draft Committee on Part B

Tuesday, 24 September 1968

9.00–13.00	Sixth Session, Part C
15.00–18.00	Seventh Session, Part C

Wednesday, 25 September 1968

9.00–13.00	Eighth Session, Part C
15.00–18.00	Ninth Session, Part C

Thursday, 26 September 1968

9.00–13.00	Tenth Session, Part C
15.00–18.00	Eleventh Session, Part D
	Report of Draft Committee on Part C

Friday, 27 September 1968

9.00–13.00	Twelfth Session, Part D
15.00–18.00	Thirteenth Session, Part D
	Report of Draft Committee on Part D

Saturday, 28 September 1968

10.00–16.00	Visit to the Moscow Institute of Steel and Alloys (Moscow)
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Sunday, 29 September 1968

Travel to USSR Iron and Steel Plants

Monday, 30 September 1968

Visits to Iron and Steel plants

Tuesday, 1 October 1968

Travel to Moscow

Wednesday, 2 October 1968

9.00–13.00

**Fourteenth Session, Part E
Report of Draft Committee on Part E**

Thursday, 3 October 1968

10.00–16.00

**Visit to the State Design and Projecting Institute
for the Iron and Steel Industry**

Friday, 4 October 1968

9.00–13.00

**Fifteenth Session
Plant Tour Reports, General discussion, Conclusions,
Proposals, Approval of the Group Reports**

15.00–17.00

**Sixteenth Session
Discussion and approval of Symposium Report
and outline of Symposium Proceedings**

Saturday, 5 October 1968

No official business

Sunday, 6 October 1968

**Travel to Poland, CSSR, France, United Kingdom
and India for visiting Iron and Steel Plants**

Monday, 7 October 1968

Tuesday, 8 October 1968

**Visit to Iron and Steel Plants in either CSSR,
France, India, Poland or United Kingdom**

Wednesday, 9 October 1968

**Visit to Iron and Steel Plants
Departure to home countries**

2ND INTERREGIONAL IRON AND STEEL SYMPOSIUM

19 SEPTEMBER-9 OCTOBER 1968, MOSCOW, USSR

1ST MEETING DAY, THURSDAY, 19 SEPTEMBER 1968

Opening session 16.00-17.00

In the Chair	Mr. E. E. Ward, UNIDO
Presentation of the Symposium	Mr. E. E. Ward Director of the Symposium
Welcome address	Mr. I. P. Kazanez Minister, Iron and Steel Industry of USSR
Message to Symposium	Mr. I. H. Abdel-Rahman Executive Director of UNIDO
Election of Chairman and Vice-Chairmen	
Chairman's address	

Session I, Part A, 17.00–18.00

Discussion Leader: Mr. L. C. Correa da Silva, Brazil

Technical Rapporteur: Mr. B. Malinin, USSR

A-1	World production, trade and prices of iron and steel	Mr. D. F. Anderson	ECE
A-4	Present status and future of the iron and steel industry of African countries	Mr. R. Robson	ECA
A-5	Present status and future of the iron and steel industry of the Asian countries	Mr. V. M. Subramanian	ECAFE
A-6	Present status and future of the iron and steel industry of the Latin American countries	Mr. B. Leuschner	ECLA

2ND MEETING DAY, FRIDAY, 20 SEPTEMBER 1968

Session II, Part A, 9.00–13.00

Discussion Leader: Mr. L. C. Correa da Silva, Brazil

Technical Rapporteur: Mr. B. Malinin, USSR

A-2	Availability of iron ore and resources for iron and steel making	Mr. D. F. Anderson	ECE
A-3	Information on activity of the Iron and Steel Permanent Commission of the Economic Mutual Assistance Board	Mr. K. Plishtil Mr. A. Penkovsky Mr. L. Makh Mr. I. Shibaev	EMAB
A-7	The iron and steel industry of the developing countries	Mr. B. R. Nijhawan	UNIDO
A-8	Forecasting iron and steel demand in developing countries	Mr. R. Robson	ECA
A-9	Economics and politics—iron and steel	Mr. H. Klinar	Austria
A-10-1	Review of the activity of the United Nations on the iron and steel industry in developing countries	Secretariat	UNIDO

A-10-2 **The value of the technical press in the development of a steel industry and its technology** **Mr. R. L. Deily** **USA**

Questions and discussion

Report of Draft Committee on Part A

Session III, Part B, 15.00-18.00

Discussion Leader: Mr. V. I. Javoyki, USSR

Technical Rapporteur: Mr. J. Astier, France

B-1 **New methods of beneficiation of the iron ores for the blast furnaces and their efficiency** **Mr. P. V. Samakhvalov** **USSR**

B-2-1 **Application of low-shaft furnaces for iron-making with sub-standard raw materials** **Mr. A. B. Chatterjee**
Mr. B. R. Nijhawan **India**

B-2-2 **Experience with the experimental blast furnace of Liège (Belgium)** **Mr. A. Poos** **Belgium**

B-3 **Progress in electric pig iron smelting** **Mr. F. C. Collin** **Norway**

B-4 **Progress of the theoretical views on steel-making** **Mr. V. I. Javoyki** **USSR**

B-5	Modern technology of oxygen steel-making	Dr. F. Wegscheider	Austria
B-6-1	The competitive open hearth	Mr. A. D. Fisher	Canada
B-6-2	Electric arc furnace steel-making for developing countries	Mr. T. V. S. Ratnam Mr. R. D. Lalkaka	India

Questions and discussion

3RD MEETING DAY, MONDAY, 23 SEPTEMBER 1968

Session IV, Part B, 9.00-13.00

Discussion Leader: Mr. V. I. Javoyaki, USSR

Technical Rapporteur: Mr. J. Astier, France

B-7	Improvement of the steel quality by treatment of the synthetic slags	Mr. A. G. Shalimov	USSR
B-9-1	Continuous steel-making	Mr. M. W. Thring	United Kingdom
B-9-2	The Irsid continuous steel-making process	Mr. P. Vayssière Mr. J. Rouanet Mr. A. Berthet Mr. C. Roederer Mr. B. Trentini	France
B-10	Recent achievements in continuous casting technology	Mr. A. I. Manokhin	USSR
B-11-1	Application of natural gas, oil and other fuels in the iron and steel industry	Mr. Z. I. Necrasov	USSR
B-11-2	Injection of light petroleum naphtha into iron smelting furnace	Mr. A. B. Chatterjee Mr. B. R. Nijhawan	India
B-12-1	The SL/RN process—key to low cost steel-making	Mr. A. D. Fisher	Canada

B-12-2	SL/RN direct reduction process for the production of sponge iron and its melting to steel	Mr. W. Janke Mr. H. Garbe	FRG
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Questions and discussion

Session V, Part B, 15.00-18.00

Discussion Leader: Mr. V. I. Javoyski, USSR

Technical Rapporteur: Mr. J. Astier, France

B-13	Water supply, re-use and disposal at an integrated iron and steel works in Great Britain	Mr. G. W. Cook	United Kingdom
B-14-1	Energetics of iron and steel plants	Mr. V. I. Petrikeeve	USSR
B-14-2	Energetics of iron and steel works, evolution and application to developing countries	Mr. J. Astier Mr. P. Dancoisne	France
B-15	Processing of metallurgical slags at iron and steel plants	Mr. S. Klemantaski	United Kingdom
B-16	Collection and processing of iron and steel scrap for iron and steel industry	Mr. K. N. P. Rao	India

B-17

**Automation in the iron
and steel industry**

Mr. F. A. Muller

ECE

Questions and discussion

Report of Draft Committee on Part B

4TH MEETING DAY, TUESDAY, 24 SEPTEMBER 1968

Session VI, Part C, 9.00-13.00

Discussion Leader: Mr. M. N. Dastur, India

Technical Rapporteur: Mr. A. Gomez, Chile

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|-------|----------------------------------------------------------------------------------------------------------|-----------------------------|------------------|
| C-1-1 | General Techno-economic prerequisites for the development of the iron and steel industry | Mr. I. A. Manasevich | USSR |
| C-1-2 | Factors affecting steel demand and its product pattern in developing countries | Mr. D. F. Anderson | ECE |
| C-1-3 | Is Latin American steel expensive? | Mr. A. Gomez | Chile |
| C-1-4 | Organization and establishment of semi-integrated steel production plants in developing countries | Mr. M. M. Sherover | Venezuela |
| C-1-5 | Economic conditions affecting the growth of the Latin American iron and steel industry | Mr. A. Gomez | Chile |

Questions and discussion

Session VII, Part C, 15.00–18.00

Discussion Leader: Mr. M. N. Dastur, India

Technical Rapporteur: Mr. A. Gomez, Chile

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|--------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------|
| C-3-1 | Influence of the different factors (market, deposits, energy, finance, etc.) on the location of steel-making plant | Mr. N. V. Igoahin | USSR |
| C-3-2 | Steel plant location in developing economies; a Canadian viewpoint | Mr. W. K. Buck
Mr. G. E. Wittur
Mr. R. B. Elver | Canada |
| C-3-4 | Steel plant location. A guide for the developing countries | Mr. E. T. Culver
Mr. J. Pearce | USA |

Questions and discussion

5TH MEETING DAY, WEDNESDAY, 25 SEPTEMBER 1968

Session VIII, Part C, 9.00–13.00

Discussion Leader: Mr. M. N. Dastur, India

Technical Rapporteur: Mr. A. Gomez, Chile

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| C-4-1 | Economic advantages of the creation of iron and steel plants for small countries on a regional basis | Mr. R. Robson | ECA |
| C-4-2 | Research for the iron and steel industry in developing countries. Possibilities for regional co-operation. | Mr. L. C. Correa da Silva | Brazil |
| C-5-1 | Steel products are mainly needed for developing countries | Mr. V. M. Zitver | USSR |
| C-5-2 | Demand for steel and prospects for regional co-operation in South East Asia | Marketing Research Department
Nippon Kokan K. K. | Japan |
| C-5-3 | The supply of steel in the developing countries | Mr. D. F. Anderson | ECE |

Questions and discussion

Session IX, Part C, 15.00-18.00

Discussion Leader: Mr. M. N. Dastur, India

Technical Rapporteur: Mr. A. Gomez, Chile

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| C-6 | Steps in the development of the iron and steel industry in small developing countries | Mr. P. A. Shirjaev | USSR |
| C-7-1 | Possibilities of developing an iron and steel industry with other than fully integrated plants | Mr. R. Tietig, Jr. | USA |
| C-7-2 | Possibilities in the development of the iron and steel industry other than fully integrated plants | Mr. G. R. Heffeman | Canada |
| C-9-1 | Assistance of the advanced countries to develop the iron and steel industries in the developing countries—its forms and organization; long term credit and the repayment of it | Mr. M. N. Dastur | India |
| C-9-2 | Assistance of the USSR in developing the iron and steel industry for the developing countries | | USSR |

Questions and discussion

6TH MEETING DAY, THURSDAY, 26 SEPTEMBER 1968

Session X, Part C, 9.00-13.00

Discussion Leader: Mr. M. N. Dastur, India

Technical Rapporteur: Mr. A. Gomez, Chile

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|--------|------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|
| C-10-1 | Requirements of manpower and qualified staff in the creation of the iron and steel industry and training of personnel | Mr. O. Malukha | CSSR |
| C-11-1 | Preinvestment information for designing the iron and steel plants in the developing countries | Mr. J. Hlavacek | CSSR |
| C-11-2 | Establishment of steel plants in small developing countries | Mr. P. P. Manikam | Ceylon |
| C-8 | Export-Import Bank and its relationship in the development of an iron and steel industry | Mr. A. C. Cass | USA |
| C-12 | Financing of the iron and steel industry in a developing country; the case study of Spain | Mr. L. Guereca | Spain |

C-13 Standardization of steel and steel products to facilitate co-ordination of national, interregional and international specifications and to promote trade among different countries

Mr. B. S. Krishnamachar India

Questions and discussion

Report of Draft Committee on Part C

Session XI, Part D, 15.00-18.00

Discussion Leader: Mr. B. Tarmann, Austria

Technical Rapporteur: Mr. I. A. Manasevich, USSR

D-1	Techno-economic basis for the selection of the technology for iron and steel making with due regard to local conditions	Mr. H. Leon Mr. C. L. Calderon	Honduras
D-2-1	Determination of the optimum capacity of the fully integrated iron and steel plant and its parts	Mr. H. R. Mills Mr. B. S. Soan	United Kingdom
D-2-2	Experiences and advantages in employing preheated cold charge in electric furnaces and their influence on new electric steel plant lay-out	Mr. F. Grossi Mr. R. Raimondi Mr. B. Andina	Italy

7TH MEETING DAY, FRIDAY, 27 SEPTEMBER 1968

Session XII, Part D, 9.00-13.00

Discussion Leader: Mr. B. Tarmann, Austria

Technical Rapporteur: Mr. I. A. Manasevich, USSR

D-5-1	New equipment for oxygen steel making plant	Dr. G. Urban Mr. H. Schirmer	FRG
D-5-2	Equipment for the continuous casting of steel for the needs of small steel works	Mr. I. Mydlarz	Poland
D-5-3	Continuously cast and rolled semi-finished material for light section and roll mills in developing countries	Mr. B. Tarmann	Austria
D-5-4	Waste gas cleaning systems for large capacity basic oxygen furnace plant	Mr. A. D. Rowe Mr. H. K. Jaworski Mr. B. A. Bassett	United Kingdom
D-5-5	Modern equipment for oxygen steel-making	Mr. K. Langer	Austria

Questions and discussion

Session XIII, Part D, 15.00-18.00

Discussion Leader: Mr. B. Tarmann, Austria

Technical Rapporteur: Mr. I. A. Manasevich, USSR

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| D-6-1 | Modern equipment for the rolling of steel | Mr. M. G. Sendzimir | USA |
| D-6-2 | A modern medium jobbing mill with production adequate to the needs of the market of miscellaneous and small demands for the rolled products | Mr. A. Mularz | Poland |
| D-6-3 | New development on the sector of tube manufacturing | Mr. J. Mietzner | FRG |
| D-6-4 | Control of strip tension in electrolytic tinning lines | Mr. K. T. Lawson | United Kingdom |
| D-8 | Iron-making plant of Chiba Works—its construction and rationalization | Mr. T. Nagai | Japan |
| D-9 | Economies of scale at small, medium sized and large steel plants | Mr. B. Leuschner | ECLA |

Questions and discussion

Report of Draft Committee on Part D

8TH MEETING DAY, WEDNESDAY, 2 OCTOBER 1968

Session XIV, Part E, 9.00-13.00

Discussion Leader: Mr. O. Fiala, CSSR

Technical Rapporteur: Mr. W. T. Hogan, USA

E-2	Economic analyses as an instrument of the management system in metallurgical production	Mr. O. Fiala	CSSR
E-3	Modern techno-economic indices and ways for their attainment in blast furnaces, steel works and rolling mills	Mr. W. H. Mieth	FRG
E-6	Efficiency of mechanization and automation in the iron and steel industry. Economic aspects of computer control of the oxygen steel-making process	Mr. F. A. Muller	ECE
E-7-1	Experience and economic profit of continuous casting in steel plant	Mr. Y. Kawamoto	Japan
E-7-2	Conversion of open hearth shops into basic oxygen furnace shops at Fuji Iron and Steel Co. Ltd.	Mr. K. Nakajima	Japan

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| E-8 | Economics on transporting
of raw materials in large
bulk carriers | Mr. W. T. Hogan | USA |
| E-9 | Development plan for the
Iron and Steel Industry
in Argentina | Mr. F. E. Aldinio | Argentina |

Questions and discussion

Report of Draft Committee on Part E

9TH MEETING DAY, FRIDAY, 4 OCTOBER 1968

Session XV, General discussion, 9.00–13.00

Plant tour reports

General discussion

Proposals and suggestions

Conclusions

Approval of the group reports

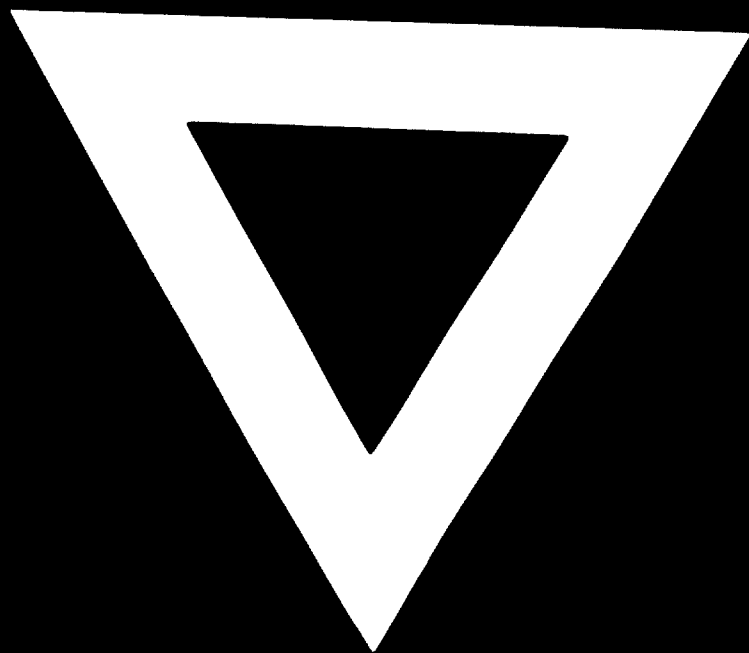
Session XVI, General discussion, 15.00–18.00

General discussion

Report of Draft Committee on the Symposium Report

Discussion and approval of the Symposium Report

Outline of the Symposium proceedings



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